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ABSTRACT

This book, on the nature and problems of inappropriate drug use by older adults, provides researchers and health practitioners with an up-to-date survey and overview of the literature on drug use, misuse, and abuse among the elderly. The volume provides abstracts of 100 selected scientific articles on the major topic areas in the field. The bibliography represents a fairly comprehensive listing of the United States literature with some relevant foreign materials. The abstracted publications, primarily scientific journal articles, are divided into eight sections preceded by a summary of the topic area presented in that section. The summaries highlight the research and related literature on that topic. The eight topics are: (1) an overview of drugs and the elderly; (2) epidemiology of drug use; (3) illegal drug use, older addicts, and the maturing-out hypothesis; (4) misuse of legal drugs; (5) pharmacology and therapeutics; (6) alcohol use and abuse; (7) consequences of drug use, misuse and abuse; and (8) prevention and treatment programs. (Author/JAC)

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Research Issues 32

DRUGS AND THE ELDERLY ADULT

Edited by:

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1983

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Foreword

The critical issues involved in drug use and abuse have generated many volumes analyzing the "problem" and suggesting "solutions." Research has been conducted in many disciplines and from many different points of view. The need to bring together and make accessible the results of these research investigations is becoming increasingly important. The Research Issues Series is intended to aid investigators by collecting, summarizing, and disseminating this large and disparate body of literature. The focus of this series is on critical problems in the field. The topic of each volume is chosen because it represents a challenging issue of current interest to the research community. As additional issues are identified, relevant research will be published as part of the series.

Many of the volumes in the series are reference summaries of major empirical research and theoretical studies of the last 15 years. These summaries are compiled to provide the readers with the purpose, methodology, findings, and conclusions of the studies in given topic areas. Other volumes are original resource handbooks designed to assist drug researchers. These resource works vary considerably in their topics and contents, but each addresses an area of emerging concern in the research world.

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Preface

Drugs and the Elderly Adult explores the nature and problems of inappropriate drug use by older adults, providing researchers and health practitioners with an up-to-date survey and overview of the literature on drug use, misuse, and abuse among the elderly. The volume is made up of an extensive bibliography, 100 abstracts of selected scientific articles, and eight integrative summaries of the major topic areas in the field. The bibliography is based on David Petersen and Frank Whittington's unpublished 1981 revision of their original selected bibliography (Petersen et al. 1979b) and was supplemented by bibliographies compiled by Meyer D. Glantz and Judith R. Vicary. The articles, book chapters, and books included in the bibliography are a fairly comprehensive listing of the U.S. literature, with some relevant foreign materials. The bibliography focuses primarily on literature involving the misuse and abuse of licit and illicit drugs by the elderly, with related materials on their use of licit drugs, their use and abuse of alcohol, and an abridged listing of the related pharmacology literature. From this bibliography, the editors, with the assistance of the Peer Review Panel, listed below, selected 100 publications to be abstracted. The abstracted publications, primarily scientific journal articles, are intended to be a collection of the most significant and representative research and theory on drugs and the elderly. Each abstract attempts to be a faithful representation of the original published report.

The abstracts are divided into sections according to topics selected by the editors. Each of these eight sections is preceded by a summary of the topic area presented in that section. The summaries are intended to review the highlights of the research and related literature of that topic, to synthesize work in the area, and to present an overview. The summaries were written by the editors with the exception of the summaries on "Pharmacology and Therapeutics" and "Prevention and Treatment Programs," which were written by Peter P. Lamy and Judith R. Vicary, respectively. The abstracts are included in the volume following the most relevant topic summary; each set of abstracts is arranged in chronological order. References cited in the summaries are listed in the bibliography. Indexes designed to meet the needs and interests of drug researchers are included at the end of the volume.

PEER REVIEW PANEL

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- 6 Mandolini, A. The social contexts of aging and drug use: Theoretical and methodological insights. Journal of Psychoactive Drugs, 13(2):135-142, 1981.

- 8 Petersen, D.M.; Whittington, F.J.; and Beer, E.T. Drug use and misuse among the elderly. Journal of Drug Issues, 9(1):5-26, 1979.

- 10 Roserfelt, R.H.; Kastenbaum, R.; and Kempler, B. "The untestables": Methodological problems in drug research with the aged. The Gerontologist, 4(2):72-74, 1964.

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- 17 Eve, S.B., and Friedsam, H.J. Use of tranquilizers and sleeping pills among older Texans. Journal of Psychoactive Drugs, 13(2):165-173, 1981.

- 20 Salzman, C., and Van der Kolk, B. Psychotropic drug prescriptions for elderly patients in a general hospital. Journal of the American Geriatrics Society, 28(1):18-22, 1980.

- 22 Barsky, A.J.; Stewart, R.; Burns, B.J.; Sweet, R.; Regier, D.; and Jacobson, A.M. Neighborhood health center patients who use minor tranquilizers. The International Journal of the Addictions, 14(3):337-354, 1979.

- 24 Hale, W.E.; Marks, R.G.; and Stewart, R.B. Drug use in a geriatric population. Journal of the American Geriatrics Society, 27(8):374-377, 1979.

- 26 Michigan Office of Services to the Aging and Michigan Office of Substance Abuse Services. Substance Abuse Among Michigan's Senior Citizens: Patterns of Use and Provider Perspectives. James, M., ed. Lansing, Mich.: Office of Substance Abuse Services, 1979.

- 29 Prentice, R. Patterns of psychoactive drug use among the elderly. In: The Aging Process and Psychoactive Drug Use, National Institute on Drug Abuse. DHEW Pub. No. 79-813. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Cff., 1979. Pp. 17-41.

- 31 Vener, A.M.; Krupka, L.R.; and Climo, J.J. Drug usage and health characteristics in noninstitutional retired persons. Journal of the American Geriatrics Society, 27(2): 83-90, 1979.

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- 33 Back, K.W., and Sullivan, D.A. Self-image, medicine, and drug use. Addictive Diseases: an International Journal, 3(3):373-382, 1978.
- 35 Chien, C.P.; Townsend, E.J.; and Ross-Townsend, A. Substance use and abuse among the community elderly: The medical aspect. Addictive Diseases: an International Journal, 3(3):357-372, 1978.
- 37 Christopher, L.J.; Ballinger, B.R.; Shepherd, A.M.M.; Ramsay, A.; and Crooks, G. Drug prescribing patterns in the elderly: A cross-sectional study of in-patients. Age and Ageing, 7:74-82, 1978.
- 39 Guttman, D. Patterns of legal drug use by older Americans. Addictive Diseases: an International Journal, 3(3):337-356, 1978.
- 41 Zawadski, R.T.; Glazer, G.B.; and Lurie, E. Psychotropic drug use among institutionalized and noninstitutionalized Medicaid aged in California. Journal of Gerontology, 33(6):825-834, 1978.
- 43 Warheit, G.J.; Arey, S.A.; and Swanson, E. Patterns of drug use: An epidemiologic overview. Journal of Drug Issues, 6(3):223-237, 1976.
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- 46 Pottier, A.E., and Inciardi, J.A. Aging on the street: Drug use and crime among older men. Journal of Psychoactive Drugs, 13(2):199-211, 1981.
- 51 Maddux, J.F., and Desmond, D.P. New light on the maturing out hypothesis in opioid dependence. Bulletin on Narcotics, 32(1):15-25, 1980.
- 53 Capel, W.C., and Peppers, L.G. The aging addict: A longitudinal study of known abusers. Addictive Diseases: an International Journal, 3(3):389-403, 1978.
- 55 Capel, W.C.; Goldsmith, B.M.; Waddell, K.J.; and Stewart, G.T. The aging narcotic addict: An increasing problem for the next decades. Journal of Gerontology, 27(1):102-106, 1972.
- 57 Capel, W.C., and Stewart, G.T. The management of drug abuse in aging populations: New Orleans findings. Journal of Drug Issues, 1(2):114-121, 1971.
- 59 Ball, J.C., and Lau, M.P. The Chinese narcotic addict in the United States. Social Forces, 45(1):68-72, 1966.
- 61 Winick, C. Maturing out of narcotic addiction. Bulletin on Narcotics, 14(1):1-7, 1962.
- 63 **MISUSE OF LEGAL DRUGS AND COMPLIANCE WITH PRESCRIPTION DIRECTIONS**
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- 70 Lief, T.P.; Allen, H.D.; and Bloom, W.A., Jr. Drug abuse and the private practice of medicine. The International Journal of the Addictions, 16(4):731-739, 1981.
- 72 Raffoul, P.R.; Cooper, J.K.; and Love, D.W. Drug misuse in older people. The Gerontologist, 21(2):146-150, 1981.
- 74 Stephens, R.C.; Haney, C.A.; and Underwood, S. Psychoactive drug use and potential misuse among persons aged 55 years and older. Journal of Psychoactive Drugs, 13(2):185-193, 1981.

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- 76 Cheung, A. Drugs for the aging: Use and abuse. In: Reinhardt, A.M., and Quinn, M.D., eds. Current Practice in Gerontological Nursing. Vol. I. St. Louis, Mo.: Mosby, 1979. Pp. 64-73.
- 79 Eisdorfer, C., and Basen, M.M. Drug misuse by the elderly. In: DuPont, R.L.; Goldstein, A.; and O'Donnell, J.; eds. Handbook on Drug Abuse. Rockville, Md.: National Institute on Drug Abuse, 1979. Pp. 271-276.
- 81 Lamy, P.P. Considerations in drug therapy of the elderly. Journal of Drug Issues, 9(1):27-45, 1979.
- 83 Warren, F. Self-medication problems among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 105-125.
- 85 Inciardi, J.A.; McBride, D.C.; Russe, B.R.; and Wells, K.S. Acute drug reactions among the aged: A research note. Addictive Diseases: an International Journal, 3(3): 383-388, 1978.
- 87 Lamy, P.P. Therapeutics and the elderly. Addictive Diseases: an International Journal, 3(3):311-335, 1978.
- 90 Lofholm, P. Self-medication by the elderly. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 8-28.
- 92 Pfeiffer, E. Use of drugs which influence behavior in the elderly: Promises, pitfalls, and perspectives. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 44-66.
- 94 Turakka, H., and Enlund, H. Drug use and prescription compliance by elderly patients. Journal of Clinical Pharmacy, 3:103-112, 1978.
- 96 Brand, F.N.; Smith, R.T.; and Brand, P.A. Effect of economic barriers to medical care on patients' noncompliance. Public Health Reports, 92(1):72-78, 1977.
- 98 Kalchthaler, T.; Coccaro, E.; and Lichtiger, S. Incidence of polypharmacy in a long-term care facility. Journal of the American Geriatrics Society, 25(7):308-313, 1977.
- 100 Marttila, J.K.; Hammel, R.J.; Alexander, B.; and Zustiak, R. Potential untoward effects of long-term use of flurazepam in geriatric patients. Journal of the American Pharmaceutical Association, 17(11):692-695, 1977.
- 102 Milliren, J.W. Some contingencies affecting the utilization of tranquilizers in long-term care of the elderly. Journal of Health and Social Behavior, 18(2):206-211, 1977.
- 104 Fracchia, J.; Snepard, C.; Canale, D.; Ruest, E.; Cambria, E.; and Merlis, S. Combination drug therapy for the psychogeriatric patient: Comparison of dosage levels of the same psychotropic drugs, used singly and in combination. Journal of the American Geriatrics Society, 23(11):508-511, 1975.
- 106 Heller, F.J., and Wynne, R. Drug misuse by the elderly: Indications and treatment suggestions. In: Senay, E.; Shorty, V.; and Alksne, H.; eds. Developments in the Field of Drug Abuse: National Drug Abuse Conference 1974. Cambridge, Mass.: Schenkman Publishing, 1975. Pp. 945-955.
- 109 Petersen, D.M., and Thomas, C.W. Acute drug reactions among the elderly. Journal of Gerontology, 30(5):552-556, 1975.
- 111 Brand, F.N., and Smith, R.T. Medical care and compliance among the elderly after hospitalization. International Journal of Aging and Human Development, 5(4):331-346, 1974.

CONTENTS (Continued)

- 113 Pascarelli, E.F., and Fischer, W. Drug dependence in the elderly. International Journal of Aging and Human Development, 5(4):347-356, 1974.
- 115 Daniel, R. Psychiatric drug use and abuse in the aged. Geriatrics, 25:144-158, 1970.
- 117 Barton, R., and Hurst, L. Unnecessary use of tranquilizers in elderly patients. British Journal of Psychiatry, 112:989-990, 1966.
- 118 Schwartz, D.; Wang, M.; Zeitz, L.; and Goss, M.E.W. Medication errors made by elderly, chronically ill patients. American Journal of Public Health, 52(12):2018-2029, 1962.
- 121 **PHARMACOLOGY AND THERAPEUTICS**
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- 130 Cadwallader, D.E. Drug interactions in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 80-93.
- 132 Seixas, F.A. Drug/alcohol interactions: Avert potential dangers. Geriatrics, 34(10): 89-102, 1979.
- 134 Ziance, R.J. Side effects of drugs in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 53-79.
- 137 Weg, R.B. Drug interaction with the changing physiology of the aged: Practice and potential. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 103-142.
- 140 Friedel, R.O. Pharmacokinetics of psychotherapeutic agents in aged patients. In: Eisdorfer, C., and Friedel, R.O., eds. Cognitive and Emotional Disturbance in the Elderly. Chicago: Year Book Medical Publishers, 1977.
- 142 Fann, W.E. Pharmacotherapy in older depressed patients. Journal of Gerontology, 31(3):304-310, 1976.
- 145 Bender, A.D. Pharmacodynamic principles of drug therapy in the aged. Journal of the American Geriatrics Society, 22(7):296-303, 1974.
- 47 Bressler, R., and Palmer, J. Drug interactions in the aged. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore, Md.: Williams & Wilkins, 1974. Pp. 49-60.
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- 54 Dunham, R.G. Aging and changing patterns of alcohol use. Journal of Psychoactive Drugs, 13(2):143-151, 1981.
- 57 Smart, R.G., and Liban, C.B. Predictors of problem drinking among elderly, middle-aged and youthful drinkers. Journal of Psychoactive Drugs, 13(2):153-163, 1981.
- 59 Gomberg, E.L. Drinking and Problem Drinking Among the Elderly. Ann Arbor, Mich.: Institute of Gerontology, The University of Michigan, 1980.
- 51 Mishara, B.L., and Kastenbaum, R.J. Problem drinking. In: Mishara, B.L., and Kastenbaum, R.J. Alcohol and Old Age. New York: Grune & Stratton, 1980. Pp. 61-84.

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- 164 Parker, E.S., and Noble, E.P. Alcohol and the aging process in social drinkers. Journal of Studies on Alcohol, 41(1):170-178, 1980.
- 166 Barnes, G.M. Alcohol use among older persons: Findings from a western New York State general population survey. Journal of the American Geriatrics Society, 27(6): 244-250, 1979.
- 168 Peck, D.G. Alcohol abuse and the elderly: Social control and conformity. Journal of Drug Issues, 9(1):63-71, 1979.
- 170 Peppers, L.G., and Stover, R.G. The elderly abuser: A challenge for the future. Journal of Drug Issues, 9(1):73-83, 1979.
- 172 Forni, P.J. Alcohol and the elderly. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 75-83.
- 174 Harford, T.C., and Mills, G.S. Age-related trends in alcohol consumption. Journal of Studies on Alcohol, 39(1):207-210, 1978.
- 176 Khantzian, E.J. Organic problems in the aged: Brain syndromes and alcoholism. Discussion: On the nature of the dependency and denial problems of alcoholics. Journal of Geriatric Psychiatry, 11(2):191-202, 1978.
- 178 Schuckit, M.A.; Morrissey, E.R.; and O'Leary, M.R. Alcohol problems in elderly men and women. Addictive Diseases: an International Journal, 3(3):405-416, 1978.
- 180 Wood, W.G. The elderly alcoholic: Some diagnostic problems and considerations. In: Storandt, M.; Siegler, I.C.; and Elias, M.F.; eds. The Clinical Psychology of Aging. New York: Plenum Press, 1978. Pp. 97-113.
- 182 Blusewicz, M.J.; Dustman, R.E.; Schenkenberg, T.; and Beck, E.C. Neuropsychological correlates of chronic alcoholism and aging. The Journal of Nervous and Mental Disease, 165(5):348-355, 1977.
- 184 Harris, C.S. The Effects of Retirement on Drinking Behavior. Rockville, Md.: The National Institute on Alcohol Abuse and Alcoholism, 1977.
- 186 Rathbone-McCuan, E.; Lohn, H.; Levenson, J.; and Hsu, J. "Community Survey of Aged Alcoholics and Problem Drinkers." DHEW Grant No. 1R18 AA0 1734-01. Final Project Report to Department of Health, Education, and Welfare by the Levindale Geriatric Research Center, June 1976.
- 188 Schuckit, M.A., and Miller, P.L. Alcoholism in elderly men: A survey of a general medical ward. Annals of the New York Academy of Sciences, 273:558-571, 1976.
- 191 Apfeldorf, M., and Hunley, P.J. Application of MMPI alcoholism scales to older alcoholics and problem drinkers. Journal of Studies on Alcohol, 36(5):645-653, 1975.
- 193 Zimberg, S. The elderly alcoholic. The Gerontologist, 14(3):221-224, 1974.
- 195 Gaitz, C.M., and Baer, P.E. Characteristics of elderly patients with alcoholism. Archives of General Psychiatry, 24:372-378, 1971.
- 197 Rosin, A.J., and Glatt, M.M. Alcohol excess in the elderly. Quarterly Journal of Studies on Alcohol, 32:53-59, 1971.
- 199 Bailey, M.B.; Haberman, P.W.; and Alksne, H. The epidemiology of alcoholism in an urban residential area. Quarterly Journal of Studies on Alcohol, 26:19-40, 1965.
- 201 Harrington, L.G., and Price, A.C. Alcoholism in a geriatric setting. Journal of the American Geriatrics Society, 10:197-211, 1962.

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- 209 Castleden, C.M.; Houston, A.; and George, C.F. Are hypnotics helpful or harmful to elderly patients? Journal of Drug Issues, 9(1):55-61, 1979.
- 211 Eckardt, M.J. Consequences of alcohol and other drug use in the aged. In: Behnke, J.A.; Finch, C.E.; and Moment, G.B.; eds. The Biology of Aging. New York: Plenum Press, 1978. Pp. 191-204.
- 214 Salzman, C., and Shader, R.I. Depression in the elderly. II. Possible drug etiologies; differential diagnostic criteria. Journal of the American Geriatrics Society, 26(7):303-308, 1978.
- 216 Shichor, D., and Kobrin, S. Note: Criminal behavior among the elderly. The Gerontologist, 18(2):213-218, 1978.
- 218 Benson, R.A., and Brodie, D.C. Suicide by overdoses of medicines among the aged. Journal of the American Geriatrics Society, 23(7):304-308, 1975.
- 220 Burch, J.G. A brief review of drug related neurologic disorders in the elderly. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore, Md.: Williams & Wilkins, 1974. Pp. 29-33.
- 222 Bean, P. Accidental and intentional self poisoning in the over-60 age group. Gerontologia clinica, 15:259-267, 1973.
- 224 Epstein, L.J.; Mills, C.; and Simon, A. Antisocial behavior of the elderly. Comprehensive Psychiatry, 11(1):36-42, 1970.
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- 234 Creedon, M.A. Social and organizational influences on the use of psychotropic drugs in nursing homes. In: Faulkinberry, R., ed. Drug Problems of the 70's. Drug Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980. Pp. 167-170.
- 236 Gaetano, R.J., and Epstein, B.T. Strategies and techniques for drug education among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly. Springfield, Ill.: Thomas, 1979. Pp. 163-177.
- 238 Thorson, J.A., and Thorson, J.R. Patient education and the older drug taker. Journal of Drug Issues, 9(1):85-89, 1979.
- 240 Whittington, F.J. Drugs, aging, and social policy. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly. Springfield, Ill.: Thomas, 1979. Pp. 190-220.
- 243 Becker, P.W., and Conn, S.H. Beer and social therapy treatment with geriatric psychiatric patient groups. Addictive Diseases: an International Journal, 3(3):429-436, 1978.

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- 245 Gollub, J. Psychoactive drug misuse among the elderly: A review of prevention and treatment programs. In: Kayna, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 84-102.
- 248 Green, B. The politics of psychoactive drug use in old age. The Gerontologist, 18(6): 525-530, 1978.
- 250 Ingman, S.R.; Lawson, I.R.; Pierpaoli, P.G.; and Blake, P. A survey of the prescribing and administration of drugs in a long-term care institution for the elderly. Journal of the American Geriatrics Society, 23(7):309-316, 1975.
- 252 Kastenbaum, R. Wine and fellowship in aging: An exploratory action program. Journal of Human Relations, 13:266-276, 1975.
- 254 Linn, M.W.; Linn, B.S.; and Greenwald, S.R. The alcoholic patient in the nursing home. Aging and Human Development, 3:273-277, 1972.
- 256 Timberg, S. The psychiatrist and medical home care: Geriatric psychiatry in the Harlem community. American Journal of Psychiatry, 127(8):102-106, 1971.

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**DRUGS AND THE ELDERLY
ADULT: AN OVERVIEW**



DRUGS AND THE ELDERLY ADULT: AN OVERVIEW

Meyer D. Glantz, Ph.D.

Drug abuse has generally been associated with adolescents and young adults. It is widely assumed that the elderly do not use illicit drugs, and while they have high levels of use of legal drugs, they are believed to use those drugs in a licit, prescribed manner. Similarly, they are usually assumed to use alcohol in a moderate, controlled fashion. While many recognize that some elderly adults do not use licit medications in the manner prescribed by their physicians or specified in the use directions for over-the-counter medications, these instances of noncompliance are typically attributed to misuse. In fact, some individuals feel that, except in rare cases, the term "drug abuse" cannot be properly applied at all to the drug use patterns of elderly adults and that only the term "drug misuse" can be accurately applied. This presumes that any inappropriate usage of drugs by the elderly is usually inadvertent, and that neither the elderly nor those providing medications for the elderly intend or are aware that the drugs are ever used in an inappropriate fashion.

It is not surprising that there is a general reluctance to consider the issue of substance abuse by the elderly; the implications of even the possibility of such a problem are extremely disturbing. Nevertheless, there are indications that the elderly population is susceptible to substance abuse and that they will be increasingly at risk for at least the next 2 decades. Research in this area is really just beginning and the relevant literature is limited, often inconclusive, and sometimes contradictory. The purpose of this volume is to present the research and theoretical literature. There are two issues that must be considered first, however.

The first issue is the identification of the population of concern. There is no universal agreement on the age definition of being elderly. Criteria in published elderly drug research have ranged from 55 years and older to 68 years and older, although the most commonly used definition is 65 years of age and older. While this is a reasonable criterion, it presumes that no further stratification is necessary. There is considerable evidence that the over-75 population is significantly different in a number of important respects from those in the 65-to-74 age group. For this reason, gerontological researchers have increasingly distinguished between the "young elderly" (65 to 74) and the "frail elderly" (75 and older). Researchers of elderly substance use and its related problems have used a variety of definitions of "elderly," and for the most part, they have not made further age distinctions. It would be helpful if a common definition were used, and it seems most reasonable for elderly drug research to follow the trend established in other areas of gerontology.

The second issue is the distinction of drug misuse from drug abuse. This is a major problem in the research literature. With younger populations who primarily abuse illicit substances, the issue rarely arises; any use of an illicit drug (except in some cases, limited "experimental" use) is immediately categorizable as drug abuse. While some elderly abusers may illicitly obtain drugs and some opiate addicts may have aged into old age and maintained some form of their habit, the majority of instances of elderly inappropriate drug use are likely to involve legal medications, prescribed for extant physical or psychological conditions, and it may be quite difficult to determine whether the inappropriate use is misuse or abuse. There is currently no consensually accepted definition of misuse and abuse, and this contributes to the difficulty. The Federal Government's Strategy Council on Drug Abuse (1979) has adopted the following definitions, which may be helpful:

Drug abuse is the non-therapeutic use of any psychoactive substance, including alcohol, in such a manner as to adversely affect some aspect of the user's life. The substance may be obtained from any number of sources--by prescriptions, from a friend, over-the-counter, or through the illicit market. The use pattern may be occasional or habitual.

Drug misuse is the inappropriate use of drugs intended for therapeutic purposes. This includes inappropriate prescribing or use of drugs resulting from: (a) lack of knowledge on the part of the physician; (b) errors in judgment by the physician, including drugs prescribed when there is a preferable or safer alternative treatment (such alternatives may include non-drug treatment); (c) use by a patient of a prescription drug not under the supervision of a physician or not in accordance with the instructions of the physician or the information provided with the drug; and (d) self-medication by a patient with a drug (over-the-counter or prescription) inconsistent with the label information.

These definitions suggest that there are two major differences between misuse and abuse. First, misuse is inadvertent while abuse is intended or, at least, the inappropriateness of the use is known to the abuser and allowed to continue. Second, as abuse involves essentially nonsanctioned, nontherapeutic use of a substance, then presumably the use has some psychoactive or psychosocial consequence. These definitions also indicate that abuse may involve both licit as well as illicit substances, and there is the suggestion that both misuse and abuse may be perpetrated by someone other than the elderly substance user.

It can be difficult to determine if a substance is being used inappropriately; the expertise of a gerontological pharmacologist may be required. The majority of cases of elderly inappropriate drug use will probably involve legally obtained prescribed and/or over-the-counter medications that might properly be used to treat conditions common among the elderly. Once the use of a substance is identified as inappropriate, the task of differentiating misuse from abuse still remains. As this distinction requires information or inferences about the knowledge and intent of the potential abuser, the differentiation of misuse from abuse will usually be difficult and will sometimes be impossible. A few guidelines for the differentiation are suggested here.

In those instances in which inappropriate use appears to be perpetrated by an individual other than an elderly user, the differentiation may be made partly on the basis of the status of the perpetrator. If the perpetrator is a physician or other professional health care provider, it is suggested that unless there is reason to believe otherwise, the inappropriate prescription, drug use direction, or drug utilization may be assumed to be a form of drug abuse. Considering the responsibility inherent in the professional role and the large-scale efforts that have been made to educate physicians and other health care providers about the special needs and medication problems of the elderly, it is reasonable to assume that these professionals have been made aware that special care and information are necessary in order to appropriately and safely provide medications for the elderly. Failure to do so is presumably therefore an act of intent or negligence, both of which would be categorized as abuse. If the perpetrator is a family member, friend, or untrained care provider, then the inappropriate use should be considered to be misuse unless there is some suggestion that the perpetrator would have had some information that inappropriate use was taking place.

If the elderly user is the perpetrator of the inappropriate use, then it is suggested that abuse can be identified according to a number of criteria, all of which indicate that the elderly user was aware of the inappropriateness. Abuse may occur because of an inappropriate source of the substance. Any use of an illegal drug, the use of an illegally obtained drug, for instance through a falsified prescription, etc., or the obtaining and use of multiple prescriptions for a drug or for drugs with similar effects would constitute abuse. The use of a drug prescribed for another person is abuse, as is hoarding drugs and using them in a manner that was not prescribed. Knowingly using a drug for a purpose for which it was not prescribed is abuse. Inappropriate drug use that involves a violation of prescription directions, a deviation from the intended quantity and/or frequency of use, or a drug combination or interaction, may be misuse or abuse and there will not necessarily be a way to distinguish the two. Elderly inappropriate drug users may take more of a drug or may take it more often than was intended; they may take a prn drug more often than the medical consensus would indicate is appropriate. They may drink too much alcohol (more than an average of 2½ or 3 "standard drinks" of alcohol beverages per day depending on their physical condition), drink too many caffeinated beverages, smoke more tobacco than is considered to be safe, or take more of an over-the-counter (OTC) drug than is recommended by the OTC use directions. They may inappropriately take a drug with another prescribed drug, with an OTC drug, or with alcohol, or they may inappropriately take alcohol with an OTC drug. They may take a drug or a combination of drugs that is inappropriate in terms of their physical condition, their nutritional situation, or their use of tobacco, caffeine, or some herbal or other "home remedy." If it may be said that the elderly person probably was aware that the drug use was inappropriate, then it is suggested that except for some cases

involving the underuse of drugs, abuse has occurred. Unless there is a strong reason to believe that the elderly person's inappropriate substance use was the result of an error of which he or she was unaware, if the inappropriate drug use (including underuse) could result in a psychoactive effect or if it appears to have resulted in a consequence that had psychological or social impact on the elderly user, or if the elderly user reports dependence on the inappropriate drug use, then it is suggested that substance abuse has occurred.¹

It is quite difficult to detect and appropriately identify substance misuse and abuse in a research assessment, and these problems are compounded by the difficulties involved in attempting to do any research with an elderly population. It is not surprising, therefore, that some of the research on inappropriate substance use by the elderly is limited either in terms of the scope or implications of its findings or is so seriously methodologically flawed as to be of questionable value. Because there has been relatively little research on elderly inappropriate substance use and because some of the research that has been done is of limited value, the true prevalence and nature of the problem are, for the most part, unknown. Some general statements are possible, however. Following is a brief review of the findings in the field.

Only a very small percentage of adults who are currently 65 years or older have ever used an illegal drug even once. There is, however, a small group of elderly opiate addicts, some of whom adapt and conceal their habits by using other more easily obtainable drugs. While elderly opiate addicts will become an increasingly serious problem as younger addicts age, this population is not currently a major problem. Although it has been hypothesized that substance abusers "mature out" of their substance use and dependence, it appears that the majority do not mature out; there is also evidence that abuse patterns may initiate later in life for more individuals than was previously assumed. Elderly substance abuse problems are almost certain to increase over the next 2 decades as more abusers age and as more elderly adults initiate abuse.

There have been many anecdotal reports that some elderly deliberately obtain multiple prescriptions for drugs, share drugs, and hoard drugs for nonprescribed use. The extent of these practices is unknown, and it is not possible to even estimate the magnitude or frequency of these abuse patterns. Reports of inappropriate drug use perpetrated by individuals other than elderly users have been alarming; nursing homes and physicians have particularly been implicated. There is no substantial information on whether these cases have involved misuse or abuse, but it is certain that these problems are common enough to be of serious concern.

It is likely that misuse perpetrated by elderly users is more common than abuse; one of the more common forms of misuse is the underuse of prescribed medications. Some gerontologists have been reluctant to consider elderly drug abuse publicly for fear that it may obscure the more common problems of misuse and may cast blame on the elderly by implying that they are responsible for problems that are really outside their control. The extent and nature of elderly substance abuse are unknown; no study has even attempted to assess all of the possible forms of misuse or abuse. Elderly alcohol abuse has proved to be more prevalent than was expected, and it would not be surprising to find that the elderly's abuse of drugs or drugs in combination with alcohol is also more common than is currently assumed. Elderly substance abuse problems are almost certain to increase over the next decade or two as more younger abusers will age into their elderly years and as more elderly adults will initiate abuse.

Compared to their younger counterparts, a far greater percentage of elderly substance abusers probably use drugs and/or alcohol as coping mechanisms for dealing with depression, difficulties, and losses. Elderly drug abuse is often hidden, denied, or unrecognized. The consequences of both substance misuse and abuse, which will usually be serious, perhaps even life threatening, may not be very obvious and may often be mistaken for the consequences of aging.

The available reliable information on elderly inappropriate substance use is disconcertingly sparse. Recognition of even the possibility of a problem has occurred only recently. Awareness and public concern that the elderly may be at risk for drug and alcohol problems are necessary before the problems that do exist now and those that are likely to exist in the near future can be explored and dealt with.

¹ A further discussion of these methodological issues can be found in M. Glantz, "The Detection, Identification and Differentiation of Elderly Drug Misuse and Abuse in a Research Survey." Paper presented at the Conference on Addiction Research and Treatment, Coatesville, November 1982. Also in E. Gottheil, K. Druley, T. Skoloda, and H. Waxman, eds., Alcohol, Drug Abuse and the Aging (Springfield, Ill.: Thomas, in press).

DRUG	Multidrug; alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Theoretical/critical review; literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	58

PURPOSE

The elderly are generally assumed to be neither users of illicit drugs nor deliberate abusers of licit drugs. However, evidence indicates that the elderly are susceptible to substance abuse and that they will be increasingly at risk for at least the next decade. This paper examines the literature on licit and illicit drug use, elderly alcoholism, and adolescent drug abuse as the basis for developing a model of elderly drug abuse.

SUMMARY

The literature on elderly drug use indicates that the elderly are at high risk for drug misuse and that they may also be at considerable risk for drug abuse involving legal drugs. In addition, a small group of elderly opiate addicts exists. Capel and associates (1972; 1978) found that some addicts do mature out of their addiction, but the majority adapt and conceal their habits by using other drugs, such as hydromorphone hydrochloride (Dilaudid); by decreasing their daily usage; and by substituting more legally available substances such as alcohol or barbiturates. The abusive use of drugs by the elderly may be associated with coping problems related to retirement, physical problems, loss of family and friends, dependence, and feelings of depression and low self-esteem.

Elderly alcohol abuse is a more widely acknowledged and more thoroughly researched problem than elderly drug abuse. One-third of the alcoholics developed their problems after entering their elderly years. Their drinking seems to be related more to attempts to cope with the stresses and problems of old age than to more deeply rooted psychological difficulties. Elderly alcohol abusers are likely to drink more often but in smaller quantities than younger alcohol abusers. Elderly alcohol abusers also have fewer severe and obvious social or physical problems or impairments than do younger alcohol abusers. Hiding, denial, or lack of awareness of the problem is common among the elderly. As the environmental stresses of the growing elderly population increase and as increasing proportions of the elderly become nonabstainers, the number of elderly alcoholics may increase dramatically over the next 10 to 15 years.

Drug abuse among the elderly may follow a pattern comparable to that for alcohol abuse. Neither elderly alcohol abusers nor elderly drug abusers seem to mature out to the extent previously believed. An aging of both abuser populations is likely, along with reductions, adaptations, and concealment of abuse as old age is reached. Both forms of abuse may either begin or recur during old age. Elderly alcoholism and elderly drug abuse appear mainly to involve small but frequent doses of legal substances. For many elderly persons, alcohol abuse and other drug abuse may be part of a single pattern.

Adolescence and old age have many similarities that may relate to drug abuse. Both involve uncertain and changing roles and self-concepts, lower social status, disadvantages with respect to employment and income, shifting and uncertain social supports, and other characteristics. Both groups are limited in their ability to become self-reliant and assert their independence and have limited resources for coping. Both groups find drugs readily available, although from different sources. This, and the elderly's regard for lawfulness and social conformity, result primarily in illicit drug use among adolescents and licit drug use among the elderly.

The stepping-stone theory, wherein initial use of alcohol and tobacco is said to lead gradually to marijuana use and then to hard drug use among adolescents, may have a parallel in the elderly's use of licit drugs. Psychological characteristics of the aged, including reduced intellectual and problemsolving abilities, may also increase the tendency among some elderly persons to return to the use of more primitive defense mechanisms such as somatization and, thus, to drug use. In addition, psychoactive drug use may reflect the more passive coping styles of many older adults.

CONCLUSIONS

The model developed here hypothesizes that elderly drug abuse results from coping problems related to the stresses and difficulties of old age. The use of drugs as a coping mechanism may lead to drug abuse, usually involving small but frequent doses of multiple legal substances, which may not result in severe obvious physical or social problems. Many drug-abusing adults may consider their substance use to be self-medication and may even be unaware that their use of drugs is abusive. Others may hide or deny their drug abuse.

This model may aid future research of elderly drug abuse, and it may suggest an approach to the prevention of drug abuse among the aged. Improvement of the social and environmental circumstances of the elderly has been suggested as an effective treatment factor for elderly alcoholism and may also succeed with the elderly drug abuser. Such efforts may also help prevent substance abuse among the elderly. Since the problem of drug abuse among the elderly is likely to increase due to demographic and cultural changes, the author urges society to devote more attention to this problem.

DRUG	General
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	42

PURPOSE

The problem of substance use and misuse among the aged is a point at which the interests of sociologists, gerontologists, and health science professionals intersect. Although empirical literature on the topic has been dominated by field reports and case studies of health professionals, it has increasingly been supplemented by analyses of data from nursing home, hospital, and Medicare records. However, a need exists for theory development to explain patterns of drug prescribing and use as a means of aiding health practitioners and social policy planners.

The present study seeks to explain why drugs are so frequently prescribed for the aged and why the aged consume so many drugs. These explanations are then linked to social learning theory and cohort analysis.

SUMMARY

The most frequently encountered explanations for the large number of drug prescriptions to the elderly are that long-term illnesses are more frequent in the older population and that drugs provide a quick, technical solution to physicians under the pressure of patients' high expectations. Furthermore, drugs are often prescribed in place of more time-consuming therapies.

Additional explanation is found in the fact that physicians rely heavily on the drug industry for drug education, despite the industry's profit orientation. All of this is rooted in the basic acceptance in American society of the medical model as the appropriate solution for a variety of problems that have become defined, appropriately or not, as health related.

Research on drug use and aging has largely been done by professionals in the health fields and thus the focus of much of the theorizing and research has been on aspects of the medical delivery system that may be responsible for the problem. According to the health care explanation, old age is a time of increased physical discomfort, and the aged seek relief for their illnesses from medical professionals and from the drugs that the professionals prescribe. Another argument in literature is that old age is a time of tremendous stress and that the aged seek out the attention of physicians and consume drugs to relieve this stress.

Social variables also play an important role in determining why the aged person chooses to consume drugs. However, these individual variables have not been so clearly researched as those involving the health professional.

Social learning theory provides a theoretical framework for identifying relevant social variables. The theory assumes that organisms move toward and repeat those behaviors that are reinforced and fail to repeat those behaviors that are not reinforced. The theory also recognizes indirect reinforcement as well as continuities in behavior through the individual's habitual ways of cognitively organizing the environment. Behavior may be further affected by individual variations in cognitive skills.

Specific variables thought by social learning theory to affect drug use by the elderly are differential association, differential reinforcement, imitation, and definitions. Thus, the elderly individual who as a child and young adult received sympathy when ill and when receiving medicine and who was threatened for not taking medicine is more likely in old age to take medicine than someone for whom this was not a lifelong pattern. Furthermore, the elderly individual whose important models have used drugs is more likely to use medicines than the individual whose significant models rejected drug use. Elderly individuals who have developed trusting definitions of the medical professions and have had these definitions reinforced by family and friends will be more likely to seek medical assistance and consume drugs prescribed. Specific phenomena, like pill swapping and addiction, can be explained through these factors.

Present groups of elderly individuals may differ from future groups. Cohort analysis measures changes in behavior characteristics of differing groups at several points in time. Behaviors may be differentiated according to whether they are age effects, cohort effects, or period effects. Thus, drug use can be viewed either as the result of aging, as a behavioral pattern of a particular age group, or as an overall cultural phenomenon. Use predictions can then be made. For instance, if drug use is an overall cultural phenomenon, then use levels can be expected to remain high as long as a substance is considered an appropriate remedy for a particular need.

Research indicates that individuals spend most of their time with age mates and that attitudes formed with age mates tend to stabilize and be influential on behavior throughout the life cycle. As each birth cohort passes through adolescence and young adulthood, its behavior with drugs is significantly affected by the prevailing laws and popular definitions. Sex is also a significant variable across age groups. Furthermore, cohort attitudes toward health science professionals may compound drug-therapy problems and dangers.

CONCLUSIONS

The literature reveals that health practitioners are increasingly concerned with prescription drug problems faced by the current cohort of elderly people. As drug-induced illness contributes to already rising health costs in the United States, and as the proportion of elderly persons continues to increase, monitoring of drug use patterns is necessary for both humanitarian and economic reasons. Understanding current patterns and predicting future drug use trends require that the effects of age, cohort, and period be clearly distinguished. Evidence suggests that drug interactions among social, illicit, and prescription drugs are likely to increase as new cohorts with broader definitions of proper drug use grow older and more susceptible to dangerous drug effects.

DRUG	Therapeutic drugs; heroin; marijuana
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Users; misusers; abusers
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	71

PURPOSE

Much speculation exists about the use and misuse of drugs among older persons in American society. Scattered reports have indicated that the elderly increasingly use and misuse a wide variety of drugs. In recent years, much public attention and concern has been directed toward this problem in the older population. However, factual information, particularly on the incidence of use and the factors related to elderly drug misuse, is scarce.

This paper presents both a review of the relevant literature and a summary of available research evidence regarding drug use and misuse among the elderly. Particular attention is given to patterns of use of legal drugs, the types and extent of misuse of legal drugs, and the issue of illegal drug abuse by the elderly.

SUMMARY

Use of legal drugs. Whereas alcohol is used more heavily by the young than the old, therapeutic drugs are used disproportionately by the elderly. Although the elderly make up only about one-tenth of the population, they were the recipients of about 25 percent of all prescriptions in 1967. The main reason for this high rate of drug use is the elderly's disproportionate number of both

physical and mental disorders. Mellinger's 1971 report on patterns of psychotherapeutic drug use showed that two factors were closely related to age: whether or not drugs were used and which drugs were used. The highest proportion of nonusers of any psychotherapeutic drugs were in the group aged 60 and over, with 65 percent of the females and 77 percent of the males reporting no use of psychotherapeutic drugs during the preceding years. Younger persons were more likely to use psychotherapeutic drugs, although older females were about as likely as those aged 18 to 29 to use prescription drugs, and elderly men were more likely to be using such drugs than were the younger men.

Another study showed that older persons were more likely to use conventional medical sources in obtaining drugs than were younger persons. A Florida study showed much higher use of psychotropic drugs among those aged 60 and over than among those between ages 18 and 29. Other studies have also shown that elderly persons are more likely to be using tranquilizers, sedatives, barbiturates, and other drugs, while the use of illicit substances is concentrated in the young.

Studies of drug use among elderly persons have shown (1) no change in physicians' prescribing habits with the advent of Medicare, (2) frequent use of psychoactive drugs in hospitalized elderly patients with mental disorders, (3) extensive use of prescribed and over-the-counter drugs among elderly persons living in the community, (4) common use of several drugs at a time, and (5) greater drug use among elderly females than among elderly males. A study of personality traits and drug use among persons aged 45 to 70 showed that women's use of medicine was significantly correlated with insecurity, the sick role, and fear of medicine, while none of these factors were significantly correlated with men's use of medicines.

Misuse of legal drugs. The misuse of drugs can take four forms: overuse, underuse, erratic use, or contraindicated use. Most literature focuses on contraindicated use, which results when the physician prescribes the wrong drug. Most problems in this area occur because of physicians' inadequate training in both geriatrics and pharmacology. Physicians and pharmacologists are giving increasing attention, however, to the problem of adverse drug reactions in elderly patients, including drug interactions and side effects. Nevertheless, physicians often prescribe drugs in response to physical or emotional complaints that relate to the aging process rather than to purely medical conditions. Noncompliance with physicians' instructions is another aspect of drug misuse. Few data exist on the exact relationship between drug use and misuse or on the rate of misuse among the elderly. However, older persons' severe drug reactions are usually to prescription drugs, especially psychotropic drugs. In addition, addicted physicians form a group of legal substance abusers who tend to be older than average; meperidine (Demerol) is the drug to which they are most commonly addicted. Physicians' addiction rate of 1 percent is 30 times that of the general population.

Abuse of illegal drugs. The abuse of illegal drugs by older persons is limited almost exclusively to marijuana and heroin and is quite low in comparison with that of younger persons. Explanations for the small number of known addicts over age 40 include both Winick's (1962) maturing-out hypothesis, which states that addiction ceases spontaneously due to the addiction's duration or the addict's age, and the belief that many older addicts do exist but never come to public attention. Several investigators have predicted that, based on current drug use patterns, the older addict population will increase markedly over the next decades.

CONCLUSIONS

Despite the increasing body of literature on drug use in the elderly, many issues remain unresolved, including the extent and patterns of drug use and misuse and the causes of misuse. Identification of the elderly who are at greater risk of multiple drug use or of frequent use of psychotherapeutic drugs is needed. For most elderly persons, underuse of medication through noncompliance seems to be a bigger problem than overuse or erratic use. Research is needed on this subject, as well as on narcotics addiction among the elderly and the use of drugs in nursing homes.

Rosenfelt, R.H.; Kastenbaum, R.; and Kempler, B. "The untestables": Methodological problems in drug research with the aged. The Gerontologist, 4(2):72-74, 1964.

DRUG	Psychotropic drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Hospital patients
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Framingham, Massachusetts
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	3

PURPOSE

Researchers have argued that geriatric patients, especially those with severe mental and physical impairment, cannot be tested psychologically because they have not been trained to accept the validity of such tests. However, psychological testing of old people is necessary to evaluate the effects of psychotropic drugs and to develop clinically useful methods and information. With the rapidly growing use of drugs as direct modifiers of emotional states, psychological change becomes a major concern in the investigation of drug efficacy. As drug treatment of any kind is likely to affect the patient's emotional condition, psychological consequences of drug therapy should be considered. The ultimate test of drug effectiveness is clinical testing, but, without appropriate psychological testing methods and materials, such testing is untenable.

To improve the repertoire of measurement techniques available, methods for research on drug effects in severely handicapped elderly persons as developed at Cushing Hospital in Framingham, Massachusetts, are described.

SUMMARY

For evaluation of the severely handicapped elderly, the same variable must frequently be measured in several different ways. Self-reports may require confirmation through objective observation, and standard procedures may need adaptation and modification to fit the current purpose. Quantification may have to be abandoned in favor of qualitative classification. New modes of interpreting behavior should be developed to make sense of regressed geriatric patients' behavioral patterns.

The factors cited influence the design of research from its inception. The sample should be selected not for ease of evaluation but for representativeness, even if individual patients are uncooperative and difficult. The testing situation may prove awkward for geriatric patients in an impoverished environment, and speech difficulties or psychomotor handicaps may reduce the volume of test data that can be obtained. As a result, conventional scoring methods may not yield differentiating information, and the researcher must organize shreds of information in new ways. Because of the time requirements for analysis, small samples are preferable to large ones. The methodology of refining hypotheses in several stages and testing in serial replications until confidence can be expressed toward results seems to be especially productive in this field. Test responses may also be evaluated in graduated levels of precision.

Criteria for interpretation of test responses must be radically revised. An important psychological index may be the single criterion of whether or not subjects are able to follow test instructions. Because of gaps in the knowledge or performance of the elderly, all levels must be explored more fully than in other patients. Although patients may be resistant to researchers' probing, investigators' persistence communicates to subjects that they are persons of value whose ideas and feelings are of interest to someone else.

Introducing elderly persons to a research project and terminating their participation are important events to them. Care must be taken that this experience is designed to maximize benefits and minimize adverse effects.

CONCLUSIONS

Although psychologists aspire to scientific rigor in research, they should also be willing to search for new concepts, procedures, and theories in assessing the effects of drugs on geriatric patients. The psychological state of the mentally handicapped elderly can be tested when assumptions are explicit, limitations are realized, and the scope of test applicability is recognized.

EPIDEMIOLOGY OF DRUG USE



EPIDEMIOLOGY OF DRUG USE

David M. Petersen, Ph.D.

Data on American drug use practices generally indicate that elderly people use many more therapeutic drugs per capita than do younger people. Despite the fact that the elderly made up only roughly 10 percent of the population, they received one-fourth of all prescriptions written in 1967 (Task Force on Prescription Drugs 1968). The Task Force, in the publication *The Drug Users*, indicates that the typical individual 65 and over acquired three times as many prescription drugs as did persons under the age of 65. The elderly received some 262 million prescriptions during 1967 for which they paid over a billion dollars (Task Force on Prescription Drugs 1968). In addition, the National Council on Aging (1970) reported that at least 20 percent of the elderly's out-of-pocket expenditures were for therapeutic drugs. Although there are no comparable data available on the over-the-counter drug market, it is probably not unrealistic to assume that nonprescription drug use (and consequently expenditures for these drugs) is also higher for the aged than for the general population.

There are many reasons given for this heavy consumption of drugs among the elderly, but the general consensus is that they have a greater number of both physical and mental disorders than do younger people (Estes 1977; Butler and Lewis 1977). Illnesses among the elderly tend to be chronic conditions or impairments that last for 3 months or longer or for an indefinite duration, and that need long-term management and control. According to the U.S. Public Health Service (1970), 86 percent of persons 65 and over have one or more of these conditions. Long-term management and symptomatic control of chronic disease and disability in the elderly is quite often achieved through the administration of drug therapy. According to the Task Force on Prescription Drugs (1968), the conditions for which drugs were most frequently prescribed for the elderly in 1966 were: heart disease, hypertension, arthritis and rheumatism, and mental and nervous conditions. The four most commonly prescribed categories of drugs for the elderly were: cardiovascular medicines (22 percent), tranquilizers (10 percent), diuretics (9 percent), and sedative-hypnotics (9 percent).

Much of what we know about drug-use patterns among the elderly has been extracted from reports of what representative samples of individuals of all ages do in regard to the use of legal drugs. There have been no national investigations of drug-use patterns of persons 65 and over. Moreover, until quite recently, studies directed specifically to the epidemiology of drug use among the elderly have been few in number. Nonetheless, existing research suggests that older age groups tend to have a higher rate of overall drug use than any other age category. Moreover, the data indicate that the elderly are the largest consumers of certain drugs, particularly psychoactive or psychotropic drugs. When the usage rate for several specific drugs is examined, elderly individuals are found to have higher rates than younger persons for barbiturates, sedative-hypnotics, and major and minor tranquilizers. The elderly as compared to their younger counterparts have also been found to be more likely to be using drugs on a daily basis for extended periods and to be taking drugs with a greater frequency. Recent research efforts have attempted to document the demographic and social correlates associated with this disproportionate drug use among the elderly.

There are a number of regional and national surveys of drug-use patterns that allow us to compare elderly cohorts with people of all ages (e.g., Mellinger et al. 1971; Chambers and Inciardi 1971; Parry et al. 1973; Warheit et al. 1976; Zawadski et al. 1978). Patterns of psychotherapeutic drug use among 1,104 noninstitutionalized adults aged 18 and over in San Francisco during 1967-68 were studied by Mellinger and his associates (1971). The study results reveal that whether or not individuals used prescription or over-the-counter drugs for seven major therapeutic classes was highly related to age. Elderly men (60 and over) were somewhat more likely to use prescription drugs obtained from a medical source than were younger men aged 18 to 29 (17 percent compared to 12 percent), whereas elderly females were almost as likely to use such drugs as were younger women (27 percent compared to 28 percent). People 60 or over were somewhat more likely to be users of prescription hypnotics than those who were younger (18 to 29). However, age differences with regard to the use of prescription sedatives, stimulants, and

minor tranquilizers revealed that younger persons are more likely to use these substances than older persons. In addition, both males and females in the 18 to 29 age group were more likely to have used nonprescription psychotherapeutic drugs than their elderly cohort (27 percent compared to 6 percent and 23 percent compared to 6 percent, respectively). Somewhat surprisingly, when a rate was computed for the use of any psychotherapeutic drug, prescription or over-the-counter, persons in the 60-and-over age category were most likely to report no use of drugs in the year preceding the survey.

Chambers and Inciardi (1971) conducted a statewide survey of psychoactive drug use among the general population of New York State during 1970 in which they examined the extent of use for 17 categories of drugs (including some illegal substances). Again, age was found to be a significant factor in the regular use of certain drugs. People 50 and over were found to have the largest percentage of regular users (at least six times per month) for the following substances: barbiturate sedative-hypnotics, 58 percent; nonbarbiturate sedative-hypnotics, 58 percent; major tranquilizers, 48 percent; and minor tranquilizers, 42 percent. In addition, a bimodal age relationship for the 18-to-24 and the over-50 age groups was found for regular users of amphetamines, noncontrolled narcotics, and prescription nonnarcotic analgesics. There was almost no reported use in the oldest age group for illicit substances such as marijuana, and regular use of all other substances (e.g., antidepressants, diet pills) was fairly evenly distributed by age group.

In 1970-1971 a national probability survey of 2,552 persons aged 18 to 74 and living in the contiguous United States was conducted by Parry and his associates (1973) to determine the amount and patterns of American psychotherapeutic drug use. Although the elderly were not found to be large consumers of drugs, they were little different from their younger counterparts in this regard. Older females (60 to 74) were about as likely to have used a psychotherapeutic drug in the year preceding the survey as were those in the 18-to-29 age group (35 percent compared to 40 percent). Differences between the youngest and oldest age categories among the males were even less pronounced (28 percent compared to 29 percent). The oldest age group, however, was found to have a consumption rate for minor tranquilizers/sedatives and hypnotics that was twice as high as for those persons aged 18 to 29.

Warheit and his associates (1976) assessed patterns of drug use among a randomly selected sample of 1,633 noninstitutionalized adults in Alachua County, Florida. They found a significant positive relationship between age and drug use, with overall drug use being highest among people 60 years and older. Medication use at the time of the interview ranged from a low of 45.3 percent in the 18-to-29 age group to a high of 75.6 percent in the 60-and-over group. The greatest differences were evident for persons receiving prescriptions for somatic conditions (e.g., diabetes, high blood pressure), with just over 50 percent (50.8 percent) of those 60 and over using these substances, compared to only 18.7 percent among those aged 30 to 44. The use of prescription psychotropic drugs (i.e., sedatives, tranquilizers, and stimulants) was also found to be highest among the elderly; 4.8 percent of the individuals aged 18 to 29 used these drugs, compared to 17.5 percent of the 60-and-over group. The results also indicate considerable age differences in the use of psychotropic drugs among persons who report using these substances. The use of stimulants was most common among those persons under 20, the use of tranquilizers was greatest in the middle years (30 to 59), and the use of sedatives was highest among those persons aged 60 and over. Frequent use of the psychotropics also varied with age.

Although percentage differences between age categories regarding frequent use of the stimulants were minimal, compared to the younger groups, those persons 45 years of age and older who had ever taken tranquilizers and sedatives were found to be the more frequent users of these drugs. For sedatives the proportion of frequent users ranged from a low of 7.5 percent among those aged 18 to 29 to a high of 20 percent among those 60 and over. The range for the tranquilizers was from a low of 55.2 percent for those under 30 to a high of 86.4 percent among those aged 45 to 59. Almost as many individuals 60 and over, however, reported using tranquilizers (83.1 percent).

Zawadski and his colleagues (1978) studied drug utilization patterns of both the aged (60 and over) and the general Medicaid populations in California for the fiscal year 1975-1976. Their data revealed that drug use is generally higher among the California aged Medicaid population than it is for the general California Medicaid population. The aged, while comprising about one-sixth (16.0 percent) of the Medicaid population, consumed 35 percent of all paid prescription drug dollars. Among the aged, drug expenditures were more than twice as high for the institutionalized as compared to the community elderly. Analysis of drug expenditures for psychotropic drugs (major and minor tranquilizers, antidepressants, stimulants, sedatives, and hypnotics) as

compared to nonpsychotropic drugs revealed that the major difference in drug use among the elderly was due to a much higher level of psychotropic drug use among institutionalized persons. There was little difference in level of psychotropic drug use between elderly living in the community and the general population. Psychotropic drug use was not found to be related to age but rather to institutional residence.

The extent of drug use by the elderly as well as the patterns of this use has been the concern of various researchers (Prien et al. 1975; Chien et al. 1978; Guttman 1978; Back and Sullivan 1978; Vener et al. 1979; Hale et al. 1979; Eve and Friedsam 1981). Prien and his colleagues (1975) examined drug administration practices at 12 Veterans Administration hospitals to determine the use of psychoactive drugs among 1,276 psychiatric patients 60 years of age and over. Drug information was collected from official medication records and included only those drugs administered to patients on the day of data collection. The results indicate that 61 percent of the elderly patients with mental disorders received at least one psychoactive drug. Frequently prescribed substances for this sample included antipsychotic agents (44 percent), antidepressants (11 percent), and antianxiety drugs (10 percent). Roughly one-sixth of the patients studied (16 percent) received a combination of two or more psychoactive drugs.

Vener and his colleagues (1979) conducted a study of prescription and over-the-counter drug use and health characteristics of 55 noninstitutionalized, retired elderly persons living in central Michigan. Thirty-seven, or 67 percent of the 55 respondents, reported taking a prescription drug during the week prior to the interview, while 36 individuals (65 percent) reported the use of an over-the-counter drug. Among those persons using any drugs, the average number taken was 5.6. Specifically, the overall number taken per person was 2.0 prescription, 1.8 over-the-counter, and 1.8 social (alcohol, caffeine, and tobacco). For men, the average number of drugs taken was 7.5 and for women, 4.7.

Hale and his colleagues (1979) studied drug use patterns over a 3-year period in a geriatric hypertension-screening program for people over 65 located in Dunedin, Florida. The study included 1,711 patients who visited the clinic during the 3 successive years, of whom 76.6 percent were regularly using drugs. A significantly higher proportion of women (79.4 percent) were using drugs as compared to men (72.0 percent). The data reveal a consistent increase by age category in the percentage of patients using at least one drug, ranging from the age group "under 70" to the group "over 84." By age 85, more than 85 percent of the respondents reported the use of at least one drug on a regular basis. In addition, the average patient was regularly using 1.9 drug classes. There was also a consistent increase in the average number of drug classes used by age category from 1.6 in the "under 70" age group to 2.6 in the "over 84" group. The most common drug categories used by this older population were antihypertensive agents (30.7 percent), vitamins (26.7 percent), analgesics (24.0 percent), cardiac drugs (15.3 percent), cardiovascular dilators (12.7 percent), diuretics (9.4 percent), laxatives (9.1 percent), and tranquilizers (8.7 percent).

An exploratory study of the dimensions of prescription and over-the-counter drug use among 242 community elderly (over 60) living in the Capital District of New York State documents the vast amount of drugs the elderly use and their simultaneous consumption of various drugs (Chien et al. 1978). These community-dwelling elderly were using some 301 different kinds of drugs, which the researchers grouped into 32 categories. The drug categories most frequently used by these subjects were, in order of frequency, analgesics (66.6 percent), cardiovascular medicines (33.5 percent), laxatives (30.6 percent), vitamins (29.3 percent), antacids (26.4 percent), antianxiety agents (22.3 percent), and diuretics (16.5 percent). Respondents reported a range from 0 to 15 of drugs used, with a mean number per respondent of 3.8. Eight of ten respondents (83.0 percent) reported using 2 or more drugs, and 14 percent of the sample were using between 7 and 15 different drugs. Only 8 percent of the subjects reported no drug use.

Another investigation into drug use among the elderly was conducted with 447 noninstitutionalized persons residing in the Washington, D.C., metropolitan area (Guttman 1978). Almost two-thirds of this sample (62.0 percent) reported the use of prescription drugs, with females reporting the use of drugs $2\frac{1}{2}$ times more frequently than males (72.2 percent compared to 27.2 percent). The three most often used classes of drugs, in order of frequency, included cardiovascular medications (39.3 percent), sedatives/tranquilizers (13.6 percent), and antiarthritic drugs (9.4 percent). These three drug classes accounted for more than half of all the prescriptions taken by this sample in the 24 hours preceding their interview. Some one-third of the respondents reported using between two and four prescription drugs, with 5 percent reporting the use of between five and nine drugs. Poor health was the main reason given by almost one-fourth of

these respondents (21.2 percent) for the use of these substances during the preceding year. Over one-fourth of the sample (26.6 percent) reported that they could not perform normal daily activities without drug therapy. Nearly 7 in 10 respondents (69.0 percent) reported the use of an over-the-counter drug. Internal analgesics were the most frequently used over-the-counter substances, with over half of the respondents (55.4 percent) reporting such use.

An examination of potential correlates of this drug use among the elderly revealed that the use of prescription drugs was negatively related with health; that is, those respondents who reported using more prescription drugs tended to be less healthy. In addition, there was a positive relationship between physical disability and prescription drug use, with disabled individuals tending to be those with greater drug use. There was a weak relationship between the over-the-counter drug use and selected socioeconomic variables, but none of the relationships was found to be statistically significant.

Back and Sullivan (1978) examined the relationship between selected personality traits and their variation with regard to drug use among 502 members (age range 45 to 70) of a health insurance plan in Durham, North Carolina. Medicines, or drugs taken to deal with specific ailments, most frequently used by these respondents in the year preceding the interview included high blood pressure medicine (10.2 percent), pills to make one lose water or salt (6.6 percent), and nitroglycerin tablets for chest pain (4.0 percent). The three most frequently used medicinal drugs, or drugs for nonspecific complaints, were vitamins or iron pills (17.5 percent), tranquilizers (15.7 percent), and painkiller medicine (11.2 percent). The use of a drug for nonmedical social purposes was reported by roughly half the respondents (alcohol, 46.6 percent; tobacco, 50.0 percent).

A major portion of the study was an analysis of the relationship between drug use and five personality factors: insecurity, tendency to adopt the sick role, fear of medicines or drugs, fear of loss of personal control, and curiosity about mind-changing drugs. For women, the use of medicine was significantly related with insecurity, the sick role, and fear of medicine. Among men, none of these factors was found to be statistically significant. The insecurity factor was found to be significantly correlated to the use of medicinal drugs for both males and females. None of the personality factors was found to be related to the use of either of the social drugs (alcohol and tobacco). This research suggests that psychological predispositions may well influence the extent of drug use.

Eve and Friedsam (1981) report on the use of two types of prescription and over-the-counter psychoactive drugs--tranquilizers and sleeping pills--among a sample of 8,061 persons aged 60 and over surveyed in Texas. Overall, almost one-fourth of the sample (22.0 percent) reported that they had taken tranquilizers within the month preceding the interview, and 12 percent reported that they had used sleeping pills. A major purpose of this study was to identify potential predictor variables related to elderly drug use. Two theoretical frameworks--a health care services utilization model and the social epidemiological framework of the etiology of mental disorders--were utilized to provide order in categorizing potential predictor variables of elderly drug use. Although the results indicate both models are useful in understanding drug utilization of older persons, the variables in the social epidemiological framework proved to be more predictive. Among the predictor variables in the health care utilization model, need variables (i.e., assessments of general health and appetite) were the most predictive of the use of both tranquilizers and sleeping pills. In the social epidemiological model, health variables (i.e., assessment of general health, assessment of appetite, and physician visits within the past year) were the most predictive of the use of both types of drugs, although variables related to income, housing, and transportation also had an effect. In general, the findings reveal that subjective assessments of determinants related to drug use are more predictive than are objective assessments.

Existing data demonstrate that the elderly are heavy consumers of both psychoactive and non-psychoactive drugs and, moreover, are the largest consumers of certain drugs. An examination of the literature reveals that a broad range of issues have been addressed regarding the use of drugs by older persons, including the extent, patterns, and causes of drug use associated with advancing age. Yet despite a growing body of data concerned with the dynamics of aging and substance use, most of these issues remain unresolved. At this time, much more research is needed to address the gaps in our knowledge of the elderly and their use of prescription and over-the-counter drugs.

Eve, S.B., and Friedsam, H.J. Use of tranquilizers and sleeping pills among older Texans. Journal of Psychoactive Drugs, 13(2):165-173, 1981.

DRUG	Tranquilizers and sleeping pills
SAMPLE SIZE	8,061
SAMPLE TYPE	Elderly
AGE	Mature adults; aged (over 60)
SEX	Both
ETHNICITY	79 percent white; other
GEOGRAPHICAL AREA	Texas
METHODOLOGY	Secondary analysis; multivariate analysis
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	1974
NO. OF REFERENCES	33

PURPOSE

Most of the research to date on the use of tranquilizers and sleeping pills has been either pharmacokinetic or pharmacodynamic. Relatively few studies of social and behavioral factors associated with drug use are available. The few existing studies of this type tend to focus on broad, demographic categories. The present study represents a secondary analysis of data collected in a needs assessment survey to establish the factors that affect drug use among the elderly.

METHODOLOGY

The data used in the survey were originally collected in a needs survey of 8,061 persons 60 years of age or older in Texas in 1974. The needs assessment survey was conducted for 13 area agencies and regional offices on aging, representing approximately 70 percent of the older population of the State. The final sample was 43 percent male and 57 percent female, 79 percent white and 21 percent from other ethnic backgrounds, 56 percent urban residents and 44 percent rural residents, and 49 percent aged 70 years and older. The survey instrument contained questions about medicines, including tranquilizers and sleeping pills, used in the past month.

Two frameworks were used to order potential predictor variables included in the survey. These two frameworks were the health care utilization framework developed by Anderson and Newman (1973) and the social epidemiological framework of the etiology of mental disorders developed by Kaplan et al. (1977). The health care services utilization framework contains three basic components: predisposing variables (e.g., age, demographic characteristics), enabling variables (e.g., income, health insurance), and need level (i.e., actual illness as perceived by the patient and evaluated by the physician). Because prescription drugs are usually obtained through a physician, those factors that are related to use of physicians are hypothesized to be related also to the use of these medicines.

According to the social epidemiological framework, psychoactive drug use indicates that someone believes that the taker's mood needs to be altered. Factors that have been found to affect moods may affect the use of mood-altering drugs as well. Thus, social epidemiological factors that have been found to affect the etiology of mental disorders will be related to the use of tranquilizers and sleeping pills. The two major categories of linkage variables studied by social epidemiologists interested in the etiology of mental disorders have been social integration variables and social stressors.

Based on the two theoretical frameworks employed, 33 potential predictor variables were located in the survey. The predictor variables were classified conceptually either as health services utilization variables or as etiology of mental disorders variables. Within the two frameworks, factors were then classified into subcategories. Hypotheses were derived about the correlation of variables to the use of drugs. The zero-order relationships between each of the predictor variables and the two dependent variables (i.e., use or nonuse of tranquilizers and sleeping pills) were inspected to determine which predictor values had a measurable effect on use of one or both types of drugs.

RESULTS

Overall, 22 percent of the sample reported that they had taken tranquilizers within the past month, and 12 percent reported that they had used sleeping pills. These figures resemble the findings of other surveys.

Among the predisposing variables predicted to affect use of drugs, only sex, marital status, minority status, and employment were related to the use of psychoactive substances. Females were much more likely than males to have taken tranquilizers and slightly more likely to have taken sleeping pills. Divorced and widowed older adults were the most likely to have taken both substances. Moreover, whites were more likely than nonwhites to have taken both, and housewives and nonworking older adults were much more likely to have taken both kinds of drugs than were older working adults. Age, education, and residence had no effect on drug use.

Among the enabling variables predicted to affect use of tranquilizers and sleeping pills, average monthly income was negatively related to the use of tranquilizers but not to the use of sleeping pills. Medicare patients were slightly more likely than non-Medicare patients to have used both kinds of drugs. Other kinds of health insurance did not affect use. In addition, the more difficulty respondents had with transportation, the more likely they were to use both kinds of drugs.

The need level variables were the most strongly related to drug use. For example, the poorer the patients' appetites, the more likely they were to use both tranquilizers and sleeping pills.

Among the stressor variables, with the exception of the measures of need for housing repairs and fear of burglary, all the measures of health, income, and housing as stressors were related to the use of both kinds of psychoactive drugs. Specifically, hospitalization in the previous year, lack of satisfaction with housing, and inability to afford all the food needed were positively correlated to use of both tranquilizers and sleeping pills.

It appears that subjective evaluations of stressors are more predictive of use of tranquilizers and sleeping pills than are the objective measures. For instance, satisfaction with income was more strongly related to use of both kinds of drugs than was actual monthly income.

While none of the objective measures of social integration were related to the use of either kind of drug, the four subjective measures were relatively strongly related to use of both

tranquilizers and sleeping pills. Thus, the more satisfied the respondents were with interaction with family, friends, and informal groups, the less likely they were to use either tranquilizers or sleeping pills. At the same time, frequency of reported loneliness was positively related to use of both kinds of drugs.

Generally, the social epidemiological variables are more predictive of the use of both kinds of psychoactive drugs than are the health care utilization variables. The social epidemiological framework also suggests that the effects of social stressors will be greatest among those individuals who are the least integrated into a social network. The joint effects of loneliness and of assessment of health on drug use seen in this study were particularly dramatic. Joint effects of stressors and loneliness were similar, if less pronounced, for assessment of income, transportation, and housing.

CONCLUSIONS

Findings demonstrate the utility for future research of both the health utilization and the social epidemiological models. Comparison of the two models indicates that the variables in the social epidemiological framework are more predictive of the use of tranquilizers and sleeping pills than are variables in the health care services utilization framework. For the utilization model predictors, the need variables are the most predictive of drug use, while the predisposing or enabling variables have a negligible or weak effect. In the social epidemiological model, the health variables are most predictive of the use of both drug types, although stressors related to income, housing, and transportation also have weak effects. Furthermore, subjective assessments of both social stressors and social integration are more predictive of drug use than are the objective assessments. Finally, the effects of the presence of all social stressors, including health, transportation, income, and housing, are exacerbated by a lack of social integration. Thus, future research on elderly drug use determinants should be based on a research model incorporating predictive variables from both the health utilization and the social epidemiological models. Measures of the subjective assessment of severity of social stressors and adequacy of integration into social network must be included in the model.

Salzman, C., and Van der Kolk, B. Psychotropic drug prescriptions for elderly patients in a general hospital. Journal of the American Geriatrics Society, 28(1):18-22, 1980.

DRUG	Psychotropic drugs
SAMPLE SIZE	195
SAMPLE TYPE	Hospital patients
AGE	Mature adults; aged (range: 60-80+; mean: 73.6)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Boston, Massachusetts
METHODOLOGY	Descriptive survey
DATA COLLECTION INSTRUMENT	Drug prescription records
DATE(S) CONDUCTED	March 11, 1978
NO. OF REFERENCES	20

PURPOSE

Drug use increases with age, with the result that almost two-thirds of older Americans use drugs regularly. The use of psychotropic drugs also rises with age. While surveys show that the use of psychotropic drugs among the elderly ranges anywhere from 7 to 92 percent, most data have only been gathered from nonhospitalized samples. This omission is significant, as elderly people occupy a growing percentage of medical and surgical beds in general hospitals. The present study seeks to make information available in this area by examining the incidence of psychoactive drug administration to elderly patients in a general hospital.

METHODOLOGY

On March 11, 1978, drug prescription records for every patient in a Boston medical/surgical teaching hospital were surveyed. The survey sample included 195 patients over 60 years old from a larger hospital sample of 348. All drugs except parenteral fluid, electrolyte replacement materials, and intravenous cytotoxic substances were considered in the survey. Of the 195 patients over the age of 60, 32 percent received psychoactive drugs; 44 percent of those patients who received psychoactive drugs on the survey day were aged 60 or older. The mean age of the sample was 73.6 years.

RESULTS

About one-third of the elderly patients received at least one psychotropic drug on the survey day. Hypnotics were the most frequently prescribed drug, having been given to three-fourths of the elderly patients on the survey day, a much higher rate than for the elderly at large. Flurazepam was the most commonly prescribed hypnotic sedative (30 mg daily); the group receiving such drugs did not differ in mean age or gender distribution from the total elderly sample.

Neuroleptic drugs were taken by 24 patients, usually in postoperative situations to combat nausea or to augment narcotic analgesia, or in cancer patients using cytotoxic drugs. One patient received chlorpromazine for hiccups and one received haloperidol for treatment of bilateral hemiballismus. Nine patients received drugs from this category because of symptoms associated with organic confusion; many had already been receiving the drugs as outpatients or in nursing homes. No patients received neuroleptics for psychosis.

Seven antidepressants were prescribed for six patients on the survey day. All of these patients were already taking antidepressants when they entered the hospital.

A total of 35 percent of the elderly patients received antianxiety drugs, although hydroxyzine was prescribed in three cases for surgery-associated nausea. Antianxiety drug prescriptions were almost exclusively for diazepam. If hypnotics were considered separately, diazepam was by far the most frequently prescribed psychoactive drug. The average dose of diazepam on the survey day was 15 mg.

CONCLUSIONS

The drugs prescribed all have potentially dangerous side effects for the elderly. In the case of diazepam, confusion and drowsiness may lead to disorientation, particularly in patients suffering from organic brain syndrome and receiving neuroleptic therapy, as three patients were. Diazepam is eliminated more slowly in the elderly than in younger people, possibly causing drowsiness, confusion, disorientation, disinhibition, increased agitation, and belligerence. The doses of both drugs should be kept below the levels administered to elderly patients in the sample. Elderly patients with organic brain syndrome also are likely to experience confusion, agitation, and psychosis as a side effect of neuroleptics. Moreover, antidepressant drugs pose the risk of hypotension, cardiac arrhythmias, constipation, urinary retention, dryness of the mouth, glaucoma, and altered cardiac rates.

Barsky, A.J.; Stewart, R.; Burns, B.J.; Sweet, R.; Regier, D.; and Jacobson, A.M. Neighborhood health center patients who use minor tranquilizers. The International Journal of the Addictions, 14(3):337-354, 1979.

DRUG	Minor tranquilizers
SAMPLE SIZE	34
SAMPLE TYPE	Chronically ill users in treatment
AGE	Young adults; mature adults; aged (range: 30-73; mean: 57.3)
SEX	Both
ETHNICITY	White
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Psychiatric interviews; Symptom Check List 90; Patient Request Form
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	19

PURPOSE

The use of minor tranquilizers has been decried by many on moral, economic, psychological, and pharmacological grounds. Others maintain that the agents are safe and that their use has not outstripped that of other classes of drugs. In general, few details are known about the medical and psychological statuses of minor tranquilizer users or about their views of the medication and the medical care process. The present study attempts to describe medical, psychological, and medical care characteristics of elderly ambulatory medical patients obtaining tranquilizers at a neighborhood health center.

METHODOLOGY

The study sample consisted of 34 patient-volunteers who were issued prescriptions for chlordiazepoxide or diazepam over a 5-month period. Medical and psychiatric statuses of the patients were measured with the standardized psychiatric interview and rating technique of Goldberg et al. (1970) and the Symptom Check List 90. The patient's own perspective was measured with the Patient Request Form.

RESULTS

There were 20 females and 14 males. All were white, ranging in age from 30 to 73, with a mean age of 57.3. The population was of low socioeconomic status and predominantly single or widowed. About one-third of the subjects had been using minor tranquilizers at high doses, and three-quarters had been taking them for a prolonged period.

The patients were suffering predominantly from chronic illnesses, one-third of which were judged to be of major import. One-quarter of the patients were judged significantly disabled. Thus, chronic tranquilizer use was significantly more often associated with chronic medical problems than recent tranquilizer use. The data regarding severity of import and level of disability were inconclusive.

The patients complained most of depression, somatization, and anxiety. Based on patient histories, they were most troubled by fatigue, anxiety, sleep disturbance, and depression. The most apparent disturbances observed by the interviewer were anxiety, depression, and excessive concern with bodily functions. A total of 35 percent were diagnosed as depressive; 21 percent, as alcoholic; 18 percent, as neurotic; and 9 percent, as psychotic. In almost all the measures of psychiatric symptomatology, the mean values of chronic users exceeded those of recent users. For somatization and anxiety, for fatigue, and for excessive concern with bodily function, these differences were statistically significant. Except for anxiety, all these symptoms may be conceived of as depressive equivalents. No statistically significant relationship was found between any particular primary or secondary diagnosis and length of tranquilizer use.

Of the 34 patients, 20 (60 percent) reported taking tranquilizers for tension and anxiety; 5 (15 percent), to ameliorate drinking problems; 3 (9 percent), for sleep; 3, for pain; and 3, for miscellaneous reasons. About 78 percent of the patients considered this medication effective. Furthermore, the patient request that received the highest mean score for the total population was for medication to calm down.

Chronic tranquilizer users were more likely than recent users to have requested medication on psychological grounds, although differences were not statistically significant. However, requests for information and advice far exceeded those for medication or actual physician intervention.

The validity of the study findings may be influenced by biases in the population sample and changes in prescribing practices. Practice setting also affects the patterns of tranquilizer use in that minor tranquilizers are more likely to be prescribed to patients with serious problems who are anxious and depressed but not obviously in need of psychiatric services.

CONCLUSIONS

Although tranquilizer use is clearly a widespread phenomenon, the point at which use becomes misuse is somewhat vague. To curb misuse, physicians need to be educated about pertinent clinical pharmacology and relevant psychiatry, and the public should know more about the appropriate uses and possible misuses of tranquilizers. Further research on personal, social, psychiatric, and medical attributes of persons using tranquilizers and on physicians' behavior is recommended.

DRUG	Prescription and over-the-counter drugs
SAMPLE SIZE	1,711
SAMPLE TYPE	Patients at a clinic for hypertension screening
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Dunedin, Florida
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Questionnaire; drug checklist; laboratory reports/examinations
DATE(S) CONDUCTED	August 1, 1977, to October 4, 1978
NO. OF REFERENCES	15

PURPOSE

Studies of both outpatients and inpatients have shown that drug misuse and adverse drug reactions constitute a significant public health problem. The elderly are at greater risk for drug-induced illness than are younger patients, although it has not been determined whether this higher risk results from increased use of drugs or from increased sensitivity to them.

As few studies on patterns of drug use by the elderly have been made in ambulatory settings, the present study analyzes relevant information on the subject collected in a geriatric hypertension screening program.

METHODOLOGY

The study sample encompassed 1,711 persons over age 65 who visited the Dunedin Program clinic for hypertension screening in Dunedin, Florida, for the third time between August 1, 1977, and October 4, 1978. Of these patients, 62.8 percent were women. Data were collected with a detailed self-administered questionnaire, a variety of laboratory tests, and a checklist of 34 drug categories to determine what drugs patients were taking.

RESULTS

When all age groups were considered, 76.6 percent of the patients were regularly using some form of drug preparation. The chi-square test indicated that a significantly higher proportion of women than men were using drugs (79.4 percent versus 72 percent). By age 85, more than 85 percent of the patients reported the use of at least one drug on a regular basis. There was a consistent increase in the average number of drug classes used with increasing age, from 1.6 in the under-70 age group to 2.6 in the over-84 group. The over-84 age group was using more classes of drugs than were any of the other groups.

Men used an average of 1.7 drug classes compared to an average of 2 used by women. Women were more likely than men to use antihypertensive agents, laxatives, hormones, analgesics, vitamins, and thyroid preparations. Compared to women, men were more likely to use cardiovascular dilators, anticoagulants, and drugs for the treatment of cardiac disease or gout.

The most common classes of drugs used by the older population in general were antihypertensive agents (30.7 percent), vitamins (26.7 percent), cardiac drugs (15.3 percent), cardiovascular dilators (12.7 percent), laxatives (9.1 percent), and tranquilizers (8.7 percent). This differs markedly from the preponderance in use of laxatives, analgesics, tranquilizers, and sedative-hypnotic drugs for patients in extended-care facilities.

CONCLUSIONS

Study findings confirm that older patients receive numerous pharmacologic agents and that the number of drug classes used increases with age. Among the elderly, women are more likely to use drugs than men, and the number of drugs used is higher among women than men.

Other investigations have shown that elderly patients are more sensitive to the pharmacologic effects of drugs than young people, probably as a result of decreased ability to metabolize and excrete these compounds. Thus, one factor that may predispose elderly patients to the development of drug-induced illness is the increased use of drugs.

From these findings, one would expect such problems as noncompliance, drug-drug or drug-disease interactions, and adverse drug reactions to be a major concern for the aged. Physicians should evaluate carefully the need for drugs in elderly patients and the possible complications of prescribed therapy.

DRUG	Prescription drugs; over-the-counter drugs; alcohol and social drugs
SAMPLE SIZE	371
SAMPLE TYPE	Senior citizens
AGE	Aged (range: 60 to 94; average: 71)
SEX	Both
ETHNICITY	Cross-cultural (90 percent white)
GEOGRAPHICAL AREA	Michigan
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	October 1977 to March 31, 1978
NO. OF REFERENCES	25

PURPOSE

The extant literature on substance use practices among older adults consistently indicates that seniors as a group are likely to encounter a number of significant problems related to their use of medications and/or social drugs. Given the relatively high prevalence of health problems among older adults, use of over-the-counter and prescription medications is frequent among this segment of the population. When one considers this in conjunction with their increased susceptibility to adverse drug effects, one must conclude that the elderly may have the greatest risk of substance use problems of any segment of the population.

The present study seeks specifically to identify the nature and scope of substance abuse problems among Michigan seniors and to assess the treatment implications of these findings. The study was undertaken as part of the efforts of a special Citizen's Task Force on Seniors and Substance Abuse established in 1977 to make recommendations for program changes.

METHODOLOGY

The study sample consisted of 371 senior citizens residing in Michigan. The majority of the seniors were white (90 percent) and female (62 percent). Their ages ranged from 60 to 94, with

an average of 71 years. They tended to be either widowed (42 percent) or married and living with their spouse (44 percent), to live in single-family homes (66 percent), to reside in urban/suburban areas (78 percent), and to live in Michigan year-round (98 percent). They had an average of 10.49 years of formal instruction, came from semiskilled or skilled occupational backgrounds (51 percent), were largely retired (83 percent) for an average length of 7 years, and had current incomes of less than \$6,000. Most had resided in Michigan for over 50 years.

Face-to-face interviews were conducted by volunteers in the homes of subjects before March 31, 1976. The 98-item interview questionnaire was based on an instrument developed by the Cathedral Foundation (1976). In addition, a total of seven different groups, including physicians, dentists, nurses, pharmacists, licensed substance abuse programs, Department of Social Service caseworkers, and aging agencies, were surveyed by mail.

RESULTS

The majority of subjects were currently using prescriptions (71 percent) and over-the-counter medications (60 percent). The most commonly used prescription medications were cardiovascular preparations (69 percent), diuretics (50 percent), psychotropics (16 percent), and vitamins/nutritional supplements (10 percent). Seniors had been using their prescriptions for an average of 31 months and took an average of 2.95 different medications.

Retaining old prescription medications (30 percent) and noncompliance with instructions for use (14 percent) or cessation of usage altogether (30 percent) were relatively common, although sharing prescription medications was not a frequent occurrence (13 percent). Thirty-two percent of the subjects received prescriptions from more than one physician. All of these factors combine to indicate a significant danger of drug reactions. The most serious aspect of seniors' prescription medication use was an apparent lack of sufficient communication between seniors and their physicians regarding prescribed medications.

Although over-the-counter medication problems were not as prevalent as prescription medication problems, at least one in five of the seniors was believed to have experienced difficulties related to over-the-counter preparations. Seniors made extensive use of over-the-counter medications, but less than one-half the users reported that their physicians were aware of such use.

There was little evidence that use of home remedies and social drugs was particularly problematic among seniors as a group. The opinions of professionals responding to the mail surveys were generally consistent with seniors' self-reports. Thus, seniors appear more likely to encounter problems related to their use of prescription and over-the-counter medications than to their use of alcohol or other social drugs.

A large proportion of the respondents to the mail surveys felt that seniors were more likely than other age groups to have medication use problems. The seniors' lack of knowledge was perceived by every service group except nurses as the first or second most important factor contributing to unwise medication use among seniors.

Among the health care professionals surveyed, physicians consistently reported lower estimates of the extent of medication problems among seniors than did nurses and pharmacists. The responses of the seniors were generally consistent with the perceptions of nurses and pharmacists but in conflict with the reports of physicians.

Females, urban residents, older seniors (over 70 years old), and seniors with low incomes and education made more extensive use of prescription medications. Males used coffee, tobacco, and alcohol more extensively than females, and younger seniors were more likely to use over-the-counter medications, tobacco, and alcohol than older seniors. Seniors with higher incomes used alcohol more extensively than low-income seniors. Educational and treatment efforts directed toward prescription medication usage should thus focus on a different population of seniors than efforts directed toward use of over-the-counter medications and/or social drugs.

CONCLUSIONS

A significant proportion of seniors in Michigan encounter problems related to their use of prescription and over-the-counter medications. Seniors are not sufficiently well-informed about the

medications they use, and seniors' medication use is not monitored adequately by the health care system. Health care and social service providers are in need of specialized training focused on substance use problems among seniors. Physicians are in particular need of education regarding medication problems among seniors. Further research is required to define and address adequately the substance use problems of seniors in Michigan.

On the basis of these conclusions, the Task Force recommends education programs for both seniors and health care providers; development of outreach and treatment programs for seniors with substance abuse problems; monitoring of drug use by physicians, pharmacists, and health care organizations; and research efforts to evaluate education, prevention, and treatment strategies and to identify substance use habits.

DRUG	Prescription and nonprescription psychoactive drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	General population; elderly
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	36

PURPOSE

The proportion of elderly persons in the population and the use of psychoactive drugs in the total population have both been increasing. However, few systematic attempts have been made to explore the extent to which older people use psychoactive drugs. This paper reviews the currently available data on patterns of psychoactive drug use among the elderly to profile the extent to which older people use psychoactive drugs. Data on drug use in the general elderly population are derived from the National Disease and Therapeutic Index (NDTI), a private data source using quarterly reports from physicians. Research studies on the institutionalized elderly are also cited.

SUMMARY

According to the NDTI, 32 percent of the population between ages 60 and 74 reported the use of a psychoactive drug within a 1-year period. About one-fifth of older men and one-third of older women reported use of a prescription psychoactive drug, while 9 percent of older men and 7 percent of older women used an over-the-counter psychoactive drug.

Tranquilizers/sedatives and hypnotics were the most widely used classes of prescription psychoactive drugs among older men and women, who had a greater tendency to use them than did younger persons. The most common over-the-counter psychoactive drugs were sleeping pills. Older women received substantially more prescriptions for psychoactive drugs than did older men.

For elderly persons in nursing homes, major tranquilizers and hypnotics were the most widely used drugs. Major tranquilizers were the psychoactive drugs most widely used among elderly psychiatric inpatients; however, drug use tended to decline with increasing age.

Noncompliance ranged from 25 percent to 59 percent in various studies. However, data did not permit generalizations about improper prescribing practices. Older people appeared less likely to abuse drugs, although they did use drugs for suicide attempts.

CONCLUSIONS

While data were insufficient to present a comprehensive profile of psychoactive drug use among the elderly, further research using NDTI could be fruitful. Access and publication potential is currently limited for NDTI, which is also hampered by its basis on voluntary reporting. Other data sources that could be used for national or regional samples include physicians' records, pharmacists' records, and patient interviews.

More information is needed on the nature and extent of psychoactive drug use among the elderly. Future research should focus on the prescription and use of individual drugs, as well as on drug classes, and should correlate the data with the diagnosis and the type of residence or institution. This approach might provide more detailed information on patterns of use and might help explain why older people use or receive psychoactive drugs. The extent and causes of misuse of psychoactive drugs should also be studied. Research efforts should attempt to develop consistent definitions and methodologies to permit comparisons of different studies.

DRUG	Prescription drugs; over-the-counter drugs; alcohol; nicotine; and caffeine
SAMPLE SIZE	55
SAMPLE TYPE	Noninstitutionalized retired persons
AGE	Mature adults; aged (mean: 70)
SEX	Both
ETHNICITY	White
GEOGRAPHICAL AREA	Central Michigan
METHODOLOGY	Retrospective survey
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	33

PURPOSE

The growing numbers of elderly persons in the United States and the common use of multiple drugs to treat several disorders simultaneously in this population have serious implications. Individual drugs or interactions between multiple drugs pose an increased risk to the elderly because of aging's physiological effects, which alter the absorption, distribution, metabolism, and excretion of drugs as well as their actions at receptor sites. Phenobarbital, for example, is often prescribed as a sedative for young people, but can, in large doses, cause stupor and coma in older persons.

The great majority of older people do not live in institutions and thus have minimal supervision with respect to their overall exposure to drugs. The known significant error rates in self-administration of prescribed drugs, the risks of chronic depression, and the potential interactions between alcohol and commonly prescribed drugs are all factors of concern in this population. This pilot study was conducted to determine the comprehensive usage of drugs among retired persons living in their own households.

METHODOLOGY

Subjects were 55 noninstitutionalized retired men and women aged 60 or older, who were purposively selected according to their peer interaction networks. The 24 males averaged 70.8 years of age, while the 31 females averaged 69.8 years. The sample members were white and lived in communities in central Michigan. They ranged from the upper working class to the upper middle class.

The indepth interviews used an instrument consisting of closed and open pretested questions. Data were gathered on background characteristics; use of prescription, over-the-counter, and social drugs; components of physical health; and life satisfaction. Respondents were also asked about side effects of drugs, whether the drugs were believed to be helpful, difficulty in remembering to take medicines, and their feelings about taking the drugs.

RESULTS

Eighteen of the respondents took no prescription drugs in the week prior to the interview; 19 respondents took no self-medication drugs; and 1 respondent took no alcohol, nicotine, or caffeine. Among those using drugs, the average number taken per person was 2 prescription drugs, 1.8 over-the-counter drugs, and 1.8 social drugs, for a total of 5.6. For men the average number of drugs was 7.5, while for women the average was 4.7. Respondents had an average of five chronic illnesses and one physical impairment.

While the potential for hazardous drug interactions from prescription drugs alone appeared to be minimal, the examination of total drug usage indicated potential interactive hazards. For example, one 79-year-old man was taking seven prescription drugs and six other drugs including vitamin C, caffeine, and alcohol. These six drugs could interact with the prescription drugs.

Respondents usually expressed overall satisfaction with their life condition. Females expressed slightly more dissatisfaction than did males. Both males and females were likely to express their dissatisfaction with Government officials. The respondents had confidence in both their physicians' diagnoses and the effectiveness of the drugs prescribed.

CONCLUSIONS

Findings are consistent with the observation that most older people have one or more chronic disorders and physical impairments. However, most respondents were generally satisfied with life. The difference between males' and females' expressed feelings and higher rates of physical impairments may represent a cultural phenomenon associated with differences in learned sex-role behavior, in that females may be more aware of their feelings and more willing to reveal them.

Previous research has shown a higher drug intake among elderly persons living in institutions than among the noninstitutionalized elderly. This higher intake may be due to the greater prevalence of disease, a greater tendency by physicians in such institutions to prescribe more drugs, or the desire of officials to maintain operational efficiency by controlling patients' behavior. Further research in this area is needed.

DRUG	Prescription and nonprescription medications; alcohol; tobacco
SAMPLE SIZE	502
SAMPLE TYPE	Members of a health insurance plan
AGE	Mature adults; aged (range: 45 to 70)
SEX	Both
ETHNICITY	White
GEOGRAPHICAL AREA	Durham, North Carolina
METHODOLOGY	Retrospective survey; correlational study
DATA COLLECTION INSTRUMENT	Physical examinations; laboratory reports/ examinations; mental function tests; social history questionnaires; personality scales
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	6

PURPOSE

A person's predisposition to use or not to use drugs in any situation may explain some of the variation in drug use patterns among individuals. Past studies have shown that the use of drugs is related to general personality tendencies, such as a desire to be changed, low self-image, belief in beneficial effects, or curiosity about drugs' effects. These studies mainly used young subjects and emphasized psychotropic drugs.

The present study focuses on middle-aged and elderly subjects and on prescription drugs in order to examine the general conditions of drug use.

METHODOLOGY

Data were derived from a longitudinal, multidisciplinary study of middle-aged and elderly persons. Subjects included 502 white members of a major health insurance plan in Durham, North Carolina. The subjects ranged in age from 45 to 70. Respondents completed a 1-day medical and psychological study consisting of a physical examination, electrophysiological studies, mental tasks, experiments on mental functions, blood tests, and a social history questionnaire. In the medical

history section of the physical examination, respondents completed a checklist on drugs and medicines taken in the previous year. The list included both prescription and nonprescription drugs. The social history questionnaire included 35 statements that yielded the drug-use personality factors from previous studies. Some standard personality scales were also used including the Sick Role index, the Internal-External scale, the Positive-Negative Affect indices, and a series of self-evaluations.

RESULTS

The 5 factors that emerged after analysis of the 35 statements relating to sickness and drug use in the study sample were, in descending order of importance, insecurity, acceptance of the sick role, fear of medicine and drugs, fear of loss of control, and curiosity. This factor structure had several striking similarities to that found in previous studies of young subjects. The major difference in the factor structure between the two samples is the appearance of a factor suggesting a general fear of medicine or drugs in the older group.

For women, the use of medicine was significantly correlated with three of the personality factors: insecurity, the sick role, and fear of medicine. For men, none of the personality factors was significantly correlated with the use of medicine, although acceptance of a sick role was just below the level necessary for statistical significance.

None of the personality factors was significantly associated with the use of tobacco and alcohol, although a negative correlation with the sick role for women and a positive correlation with fear of medicine for men were just below the significance level.

The multiple regression analysis using the variables in the other scales in the study showed that use of medical drugs in both sexes depended on general unhappiness-insecurity, negative feelings, and the difference between how one appears to others and how one would like to be. These strong relationships were the study's most important results.

Sex differences were important factors in medicine use. Men were influenced mainly by ideal persona and having had positive feelings during the preceding week, while women were influenced to take medicines mainly by the fear of medicines, acceptance of the sick role, insecurity, and fear of loss of control, as well as by the difference between how they are and how they appear to others. Men seemed to have a more positive approach to medicines than women, while women seemed to be influenced mainly by fear. Men's use of social drugs (tobacco and alcohol) was related to fear of medicine, while women's use was influenced by a variety of variables.

CONCLUSIONS

Personal attitudes and disposition appear to be important factors in the use of medicines and medical drugs, as well as of mood-changing drugs. Variables related to young adults' use of mind-expanding drugs were also related to elderly persons' use of drugs for medicinal purposes. However, elderly persons' drug use was also related to illness and not to the search for stimulation and curiosity. The use of social drugs appeared to be determined by social influences.

The data presented give an indication of the social-psychological determinants of drug use. Middle-aged and elderly persons try to balance their general anxiety and mood, their feelings about illness and medicine, the way they see themselves, their impression on others, and how they would like to be. These personal preferences lead to consumption of drugs. The data give an indication of the social and psychological determinants of drug use.

Chien, C.P.; Townsend, E.J.; and Ross-Townsend, A. Substance use and abuse among the community elderly: The medical aspect. Addictive Diseases: an International Journal, 3(3): 357-372, 1978.

DRUG	Prescription and over-the-counter drugs; alcohol; tobacco; coffee
SAMPLE SIZE	242
SAMPLE TYPE	Elderly persons living in a variety of settings
AGE	Mature adults; aged (range: 60-95)
SEX	Both
ETHNICITY	White (91 percent); black; Puerto Rican
GEOGRAPHICAL AREA	New York
METHODOLOGY	Descriptive study; retrospective study
DATA COLLECTION INSTRUMENT	Questionnaire; interviews
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	7

PURPOSE

Elderly persons are known to consume more prescription medications than younger persons. The frequent use of multiple drugs among elderly persons in hospitals and nursing homes has also been well established. However, little information exists on the extent and nature of drug use among elderly persons living in the community.

This study was designed as a fact-finding pilot study to determine the prevalence and patterns of drug use by elderly persons living in the community and to suggest areas for future study and for health care planning.

METHODOLOGY

The subjects were 242 persons over age 60 living in the Capital District of New York State. Subjects were located in senior citizen centers, housing complexes for the elderly, a geriatric day-care center, a halfway house, a sobering-up station, a foster-care family, a nursing home, and private families. The half-hour interviews used a six-page questionnaire containing both structured and partially open-ended questions. Questions covered socioeconomic status, degree of social and familial isolation, health status, and use of substances. Substances included

prescribed drugs, over-the-counter drugs, and social drugs such as alcohol, tobacco, and coffee. Data were analyzed by computer with the Statistical Package for the Social Sciences.

The subjects were two-thirds male and averaged 73 years of age, with a range of 60 to 95 years. Nine-tenths were white; the rest were black and Puerto Rican. Mean educational level was 10 years. Over half lived alone. Their average occupational status was slightly below the national mean, and three-fifths did not own a car.

RESULTS

Only 2.5 percent of the sample reported no illness. The remainder suffered from symptoms in 1 to 11 body systems, with 4 systems the most common number afflicted. Only 7.4 percent of the sample were not currently under a physician's care.

The 242 individuals were taking a total of 301 kinds of prescribed and over-the-counter drugs. Three-fifths were prescription drugs. The subjects average 3.8 drugs each, with a range of 0 to 15 drugs. Five-sixths of the subjects were taking 2 to 6 drugs, and 14 percent were taking 7 to 15 drugs.

Use of analgesics was reported by two-thirds of the sample. Other common drugs were cardiovascular preparations, laxatives, vitamins, antacids, antianxiety drugs, and diuretics. Irrational usage resulting from the consumer's misunderstanding of the uses of the drugs occurred in 14 percent of the sample.

Just over half of the subjects used no alcohol, while 8 percent took more than one drink per day. Three-quarters of the sample were nonsmokers, but 6 percent smoked between 2 and 3 packs a day. Nearly one-third of the subjects drank 4 to 6 cups of coffee per day, and one-sixth drank more than 6 cups per day. Abuse of alcohol and narcotics was not found.

CONCLUSIONS

Given the common consumption of more than one drug, problems of drug interaction could be a serious and often unreported problem. Drugs' interference with laboratory tests could also delay or mask the accurate diagnosis of hidden illness.

Among possible steps that could be taken to make drug therapy safer are (1) issuance of a medication card to list all names of drugs provided by the pharmacist and to be presented by the patient to any prescribing physician or pharmacist, (2) provision of greater consumer education about health and medications, and (3) funding of research to determine safe and effective dosages for elderly persons.

Christopher, L.J.; Ballinger, B.R.; Shepherd, A.M.M.; Ramsay, A.; and Crooks, G. Drug prescribing patterns in the elderly: A cross-sectional study of in-patients. Age and Ageing, 7:74-82, 1978.

DRUG	Prescription drugs
SAMPLE SIZE	873
SAMPLE TYPE	Hospitalized persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Dundee, Scotland
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Hospital records
DATE(S) CONDUCTED	July 1975
NO. OF REFERENCES	15

PURPOSE

Persons over age 65 now make up over 13 percent of the British population, compared to 5 percent early in this century. The elderly require more inpatient hospital care than younger persons and often receive multiple drugs. Thus, the elderly may be more at risk of adverse drug effects than their younger counterparts.

This study focused on prescribing patterns in elderly inpatients in hospitals in Dundee, Scotland.

METHODOLOGY

The study concentrated on prescription use on 1 day in July 1975 for all patients aged 65 years and over in Dundee hospitals. A total of 873 patients were studied. Information was gathered on the drugs prescribed, dosages, and routes and frequency of administration. The patients were grouped into five categories (medical, surgical, geriatric, psychiatric, and mentally sub-normal) according to the wards they occupied. The sample included 625 females and 248 males. A total of 266 of the females were over age 80; most of them occupied geriatric and psychiatric beds. The males were fairly evenly distributed with respect to age. The total subjects included

301 psychiatric patients, 279 geriatric patients, 158 medical patients, 100 surgical patients, and 35 mentally subnormal patients.

RESULTS

The patients received an average of 3.3 prescriptions each during the 24-hour period studied. Patients in geriatric wards were prescribed the highest number of drugs, four each on the average. The most common number of drugs prescribed was 3, while 128 patients received no medication. A total of 120 patients were prescribed 6 drugs or more, and 132 patients received 10 or more drug doses on the study day.

Data from another source indicate that about 20 percent of all prescriptions are administered on an "as required" basis in Dundee hospitals in general. In this survey, 50 percent of the drugs prescribed were to be administered on an as-required basis, but on the day of the survey, only 20 percent of these as-required prescriptions were actually administered.

The drugs most commonly prescribed were phenothiazines, chloral derivatives, diuretics, and laxatives. The prescribing of hypnotics ranged from over 40 percent in medical patients to more than 70 percent in geriatric wards. Only one of the mentally subnormal patients was prescribed a hypnotic. Of the 66 patients who received antidepressants, 29 were psychiatric and 24 were geriatric. Four-fifths of the antidepressant prescriptions were for tricyclic antidepressants. The patient's age did not appear to be a major factor in determining dose level of phenothiazines in the nonpsychiatric patients, while the proportion of low daily doses increased with age in the psychiatric patients. A variety of prescribing patterns was found for tricyclic antidepressants, with some patients receiving the drug once daily and others, more often.

CONCLUSIONS

Prescribing was not particularly heavy, but the use of certain drug groups, particularly the hypnotics, appeared to be excessive, and little dose reduction was apparent with increasing age. The complexity of many drug regimes made it unlikely that patients would comply with the regimes on discharge to their own homes. Moreover, daily doses would have been sufficient for drugs with a prolonged pharmacological effect that were prescribed two or three times daily. These possible problem areas could be modified to produce a better therapeutic response, reduce adverse effects, and improve patient compliance.

DRUG	Prescription drugs; over-the-counter drugs; alcohol; psychotropic drugs
SAMPLE SIZE	447
SAMPLE TYPE	Noninstitutionalized users versus nonusers
AGE	Mature adults; aged (60 and older)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Washington, D.C., Standard Metropolitan Statistical Area
METHODOLOGY	Correlational study; descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	February-June 1976
NO. OF REFERENCES	24

PURPOSE

Although research on the elderly has increased, little attention has been paid to the use of legally available drugs by the elderly, especially the majority who are healthy and not living in institutions. This study was sponsored by the National Institute on Drug Abuse to determine differences between users and nonusers of legal drugs. Information was also sought on the extent of side effects resulting from the use of various drugs in combination, the seeking of treatment for such side effects, whether older persons could obtain the drugs they needed, and their dependence on drugs to continue the activities of daily living.

METHODOLOGY

A social area analysis approach was used to select 24 representative census tracts in the greater Washington, D.C., Standard Metropolitan Statistical Area. A stratified sampling procedure was used to select 447 persons aged 60 and over who were ambulatory and living in the community. The study's questionnaire covered physical and psychological variables, socioeconomic and demographic variables, prescription drug use, over-the-counter drug use, and alcohol use. Interviews were conducted by 11 social workers and other professionals between February and June 1976. The refusal rate was 53 percent, and the refusers appear to have the same composition

in terms of age and sex as those completing the interviews. Data were analyzed using a correlational design.

The sample was about 40 percent male and 60 percent female and had an average age of 71.87 years. The sample was similar to the general elderly population with respect to sex and marital status but had a much higher level of education. However, the sample could be regarded as representative of the Nation's noninstitutionalized elderly who are living in their homes. Most respondents felt that their health was good or average.

RESULTS

Almost two-thirds of the respondents (62 percent) reported that they use prescription drugs. The most frequently used were cardiovascular drugs (39.3 percent), sedatives and tranquilizers (13.6 percent), and antiarthritic drugs (9.4 percent). More than one-third of the respondents used between two and four prescription drugs, while 5 percent reported using between five and nine drugs. The drugs were usually obtained from a physician. A total of 39.3 percent were sometimes or always dependent on prescription drugs for the performance of their regular daily activities. Nevertheless, only 12 percent of the respondents admitted either overdoses or side effects of prescription drugs. Those who had experienced such effects consulted with professionals, usually a physician.

About two-thirds of the sample used over-the-counter drugs, most commonly internal analgesics. Most of the subjects relied on their own decisions regarding such drugs and did not consult physicians. Over half of the respondents reported little or no use of alcohol. About one-fourth were infrequent users, while 18.6 percent were frequent users. Just over 1 percent said they had encountered some problems, such as blackouts or accidents, related to the use of alcohol. All these respondents had sought treatment.

The use of prescription drugs was negatively related to health. Higher income respondents were more likely to use alcohol, and infrequent users of alcohol seemed to possess the highest scores on health. The persons who were least disabled physically tended to use alcohol and/or over-the-counter drugs, while the most disabled were more likely to use prescription drugs or a combination of prescription drugs and over-the-counter drugs but no alcohol. Respondents who used both alcohol and over-the-counter drugs were more likely to be married, and the abstainers from alcohol were usually living alone or with friends.

Almost all users of psychotropic drugs obtained their drugs from a physician. Half the users reported that they could not perform regular daily activities without these drugs. They had the same percentage of side effects and medical problems from these drugs as did the general population taking prescription drugs. More users of psychotropics than users of other prescription drugs took several kinds of drugs in combination. Users of psychotropics also consulted physicians more and were less moderate in their drinking of alcoholic beverages than users of nonpsychotropic drugs. Users also tended to be younger and native born, whereas nonusers were generally older and foreign born. More women than men used psychotropic drugs.

CONCLUSIONS

Findings resemble those reported by Lenhart in 1976 and by the Task Force on Prescription Drugs in 1968, but reported alcohol use was lower than for a 1974 Gallup poll. In the present study, health and physical disability were the characteristics most strongly associated with drug use. Income was the single most outstanding determinant of alcohol use. Prescription drugs were heavily used, especially by women. The author suggests that further studies attempt to isolate additional characteristics of users and nonusers to aid service providers, planners, and administrators seeking to improve the quality of life for all older Americans.

DRUG	Prescription drugs
SAMPLE SIZE	Varied among groups (from 25 to 2 million)
SAMPLE TYPE	Medicaid recipients
AGE	General population; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	California
METHODOLOGY	Secondary analysis; comparative study
DATA COLLECTION INSTRUMENT	California Medicaid (Medi-Cal) data base
DATE(S) CONDUCTED	1975-1976
NO. OF REFERENCES	15

PURPOSE

Previous research has shown that prescription drug use is higher for the elderly than for the general population. A 1975 report noted that the elderly, who make up 11 percent of the U.S. population, consume about 25 percent of all drugs. This drug consumption may be partly due to the typical chronic problems of the aged and partly due to inappropriate medication of the elderly population, especially those in long-term care facilities.

This study focuses on the level and pattern of prescription drug usage among the aged, with emphasis on variations across long-term care treatment modalities.

METHODOLOGY

The California Medicaid (Medi-Cal) data base for the fiscal year 1975-1976 was used to describe and compare levels and patterns of prescription drug use. Dollar expenditures were used to describe levels of drug use, and the 15 top drugs were used to provide a "drug profile." Drug expenditures and drug profiles were compared for several groups and subgroups: (1) the general Medicaid population of 2 million eligible Californians; (2) the Medicaid aged, consisting of 361,000 eligible persons over age 60; (3) the approximately 60,000 institutionalized aged in

long-term care facilities; and (4) the 300,000 noninstitutionalized elderly persons. In addition, Medicaid prescription data were obtained from a sample of 25 participants in a community adult day health program. These 25 persons were frail elderly persons who were eligible for institutionalization.

RESULTS

Prescription drug expenditures were found to be more than twice as high for the aged as for those in other age groups. The aged, who constituted 18 percent of the Medicaid population, received 35 percent of the paid prescription drug dollars. Among the aged, more than twice as much was spent on the institutionalized aged in residential, intermediate, and skilled nursing facilities than was spent on the noninstitutionalized aged or community aged.

When expenditures were classified into psychotropic and nonpsychotropic drugs, the bulk of the difference in drug use among the aged was attributable to a much higher level of psychotropic drug use among the institutionalized persons. The institutionalized aged had 17 times more expenditures on psychotropic drugs than did the noninstitutionalized. The noninstitutionalized aged did not differ from the nonaged in the level of psychotropic drug expenditures.

The use of both psychotropic and nonpsychotropic drugs among the 25 participants in the day health program was similar to that for the noninstitutionalized aged.

CONCLUSIONS

Results confirmed the findings of previous studies that the volume of drug usage increases with age. In contrast with previous research, this study found that psychotropic drug use is related not to age but to institutional residence. Further research is needed to identify the reasons for this increased use of psychotropic drugs.

DRUG	Prescription and nonprescription drugs; psychotropics; alcohol
SAMPLE SIZE	1,633
SAMPLE TYPE	General population
AGE	Young adults; mature adults; aged (range: 18-60+)
SEX	Both
ETHNICITY	White; black
GEOGRAPHICAL AREA	Alachua County, Florida
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	23

PURPOSE

The use of drugs and their potential abuse are of major medical and social concern in the United States. However, most of the existing research has focused on the use of illicit drugs. This paper provides an overview of general drug use patterns, using a sample of 1,633 adult respondents in the southeastern United States.

METHODOLOGY

The data were obtained as part of a major 5-year study designed to evaluate southern mental health needs and services. The study site, Alachua County, Florida, had a population in 1970 of 103,000 persons consisting of two basic economic groups: those living at or near subsistence levels, who were generally black, and those with middle and upper middle class incomes, who were mostly white. A random selection procedure was used to generate data on 1,633 respondents, who were interviewed using a 317-item instrument containing a section on patterns of drug use.

RESULTS

A total of 53.3 percent of the sample were taking some kind of drug at the time of interview. Of the total sample, 26.6 percent were taking nonprescription drugs, 28.8 percent were using drugs prescribed for some specific somatic illness, 10.6 percent were taking drugs usually classified as psychotropic, and 14 percent reported taking drugs that could not be positively identified and were therefore labeled "undifferentiated." Race was an insignificant factor with respect to type of drug use or the existence of drug use. However, large sex differences were found in drug use, with 73.9 percent of the white females and 74.3 percent of the black females taking some form of drug, versus 39.1 percent of the white males and 43.1 percent of the black males. The percentage of white females using psychotropic drugs was almost twice that of white males while 11.7 percent of black females and 4 percent of black males were using psychotropic drugs.

Age differences in drug use were also found, with differences varying according to the type of medication. A significant increase in drug use was seen in persons aged 45 or older, with the highest percentage of overall drug use occurring among those 60 years old and older. Three-quarters of the persons aged 60 or older reported using some kind of medication. The greatest differences were for the use of psychotropic drugs, with use by 4.8 percent of those under age 30 years and 17.5 percent of those aged 60 and older. The smallest age differences were for nonprescription drugs.

There were few differences between the various age groups in terms of frequency of alcohol consumption. The most frequent alcohol users were among white, male, middle-aged, and upper socioeconomic groups. About two-thirds of the total sample reported using alcohol at some time in their lives, with 15.3 percent reporting frequent drinking.

CONCLUSIONS

Findings support the widespread belief that drugs are used extensively in our society, particularly among the elderly. This study's data on the use of psychotropic drugs and alcohol are generally consistent with those of other researchers.

**ILLEGAL DRUG USE, OLDER
ADDICTS, AND THE MATURING
OUT HYPOTHESIS**



ILLEGAL DRUG USE, OLDER ADDICTS, AND THE MATURING-OUT HYPOTHESIS

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It is generally accepted that the use of illegal drugs is concentrated among young adults and that in comparison the use of these substances by the elderly is quite low. The use of illegal drugs by older persons, when it does occur, is primarily limited to marijuana and heroin (Manheimer and Mellinger 1969; Chambers and Inciardi 1971; DuPont 1976). It has been estimated, for example, that only 2 percent of those persons 50 years of age and over in the United States have tried marijuana at least once compared to 56 percent of the 18-to-21 age category (DuPont 1976). Unfortunately, the paucity of data regarding the use of most illicit substances among the elderly dictates that the following comments be limited to opiate use.

Opiate addiction is also a phenomenon that is concentrated among the young, with very few known addicts being over the age of 40. Data on national admissions to the U.S. Public Health Service Hospitals at Lexington, Kentucky, and Fort Worth, Texas, in 1963 revealed that persons under the age of 40 made up 80 percent of all patients treated for addiction, while patients over 50 accounted for only 10 percent, and persons over 60 for less than 4 percent (Ball and Chambers 1970). One special addict group--the Chinese opium addict--can be identified as a notable exception to this younger age pattern among known addicts. Ball and Lau's (1966) study of a group of Chinese addicts released from the Lexington Hospital between 1957 and 1962 revealed that 88.4 percent were over 40. Most were long-term addicts who had become addicted early in this century after immigrating to this country from China.

The question of why so few known narcotic addicts are older than 40 has interested researchers for some time. Winick (1962) offered an explanation for this phenomenon in which he posited that addiction ceases spontaneously due either to the chronological age of the addict or the duration of the addiction. Winick's "maturing out process" thesis was developed after he analyzed the active addict list of the Federal Bureau of Narcotics and found that most addicts disappeared from the official records between the ages of 35 and 45. Winick believed that addicts were most likely using narcotics in their late teens or early twenties when problems regarding sexuality, aggressiveness, and occupational choice are most severe. He speculated that some of these addicts may reach a point of "emotional homeostasis" in their thirties when life stresses may be reduced enough so that they can better deal with their problems without the assistance of drugs. Others, he suggests, may simply "burn out" of their addiction--they either become too debilitated to support their habits or they die.

Although the maturing-out hypothesis may well be a likely explanation for some addicts, evidence is available that suggests that many more elderly narcotic users exist than heretofore had been assumed. O'Donnell's (1969) followup investigation of 266 former patients at the Lexington Hospital demonstrated the weakness of depending on the Bureau of Narcotics' records as proof of the absence of "elderly" narcotic users. He reported that, of these former patients, 144 were deceased, 21 were found to be still addicted to narcotics, and the remainder were abstinent, addicted to other drugs, or institutionalized. Of the 21 addicts who were still addicted to narcotics, however, only 1 was found to have ever come to official attention by the Bureau and subsequently to have been placed on their active addict list. While this finding does not in itself refute Winick's thesis, it does suggest that addicts may exist in substantial numbers whether they come under official scrutiny or not. Indeed, there is increasing evidence to suggest that many elderly addicts manage "on the street" without coming to public attention.

In an investigation of narcotic addicts in New Orleans (Capel et al. 1972), it was found that a substantial number of addicts (N=38) between the ages of 45 and 75 were living in the community and were not enrolled in any treatment program. These addicts had not ceased using opiates but as they grew older they had succeeded, through a number of adaptive measures, in camouflaging their drug habits to avoid official detection and arrest. Many of these addicts had switched from a scarcer, less dependable drug, such as heroin, to a cheaper, more easily

obtainable drug such as hydromorphone hydrochloride (Dilaudid). In addition, they had decreased their daily intake of drugs or turned to a barbiturate or alcohol substitute on occasion.

A followup study of the 38 addicts identified by Capel and his associates was conducted in 1976 (Capel and Peppers 1978). Eleven of the 38 addicts were located during the followup and reinterviewed, and all were determined still to be using drugs in roughly the same dosage and frequency as they had been 7 years earlier. Six of the 38 were deceased (from natural causes), and the remaining subjects could not be located. Apparently, some addicts are able to maintain their drug habits at a constant level as they age without coming to public attention.

Maddux and Desmond (1980) pointed out weaknesses in Winick's methods and conclusions. From their review of a number of studies, they concluded that only a minority of addicts, 19 to 40 percent, appeared to achieve continuous abstinence for 3 years or longer. In their own study of 248 opioid users in San Antonio who were treated at the former Public Health Service Hospital in Fort Worth during the years 1964 to 1967, only 22 percent had achieved continuous abstinence for 3 or more years by 1979.

Pottieger and Inciardi (1981) examined drug use, crime, and their interrelationship in street life and concluded that they are by no means exclusively youthful phenomena. Although the primary purpose of their research was a cross-comparative analysis of four major categories of older men in street populations, they do provide selected findings from their ongoing multiple city investigation of drug use and crime. Data were gathered in Miami, Florida, during 1977-1978 on 1,009 persons, of whom 56.7 percent were heroin users and the rest criminally active individuals in the same neighborhoods, jails, and residential treatment centers. The majority of the interviews (72.5 percent) were done "on the street." Analysis was confined to 697 men, of whom 42 (6 percent) were age 50 and older. The data reveal that in contrast to the younger men, these aging criminal/addicts typically were white, born in a place other than Miami, and were not high school graduates. They began their criminal careers at a later age than younger cohorts and their current criminal offenses were less frequent and also less violent. They also tended to be arrested for their offenses more often. In regard to drug use, the men in this sample began using drugs at a later age than the younger men, they experimented with fewer types of drugs, and their current level of drug use was less frequent. They were, however, more likely than the younger cohorts to be currently using alcohol on a regular basis.

Pascarelli's (1972) study of older addicts who sought treatment for their addiction in a methadone maintenance program at Roosevelt Hospital in New York City provides a different perspective on the elderly narcotic addict. Analysis of persons in treatment revealed that addicts over 60 years of age accounted for over 2 percent of the patients in the Roosevelt program. Pascarelli argues, however, that even this figure is a serious underestimate of the size of the older addict population. He depicts the elderly addict as one who presents a low profile in the community by using the same adaptive techniques as described by Capel and his colleagues (1972). In addition, he notes that elderly drug users are likely to be the least satisfied with methadone treatment and, once in a program, are the least likely to request detoxification. Dissatisfaction with methadone, coupled with an ability to manage their drug habits relatively well in the community, dissuades many older addicts from seeking treatment for their addiction. In addition, an examination of the number of middle-aged addicts in treatment led Pascarelli and Fischer (1974) to predict that the older addict group would increase markedly over the next two decades. Their prediction is based upon data from the Roosevelt program, which indicated that 34 percent of the treatment population was already over 40, and as these persons grow older, there will result both an absolute and a relative growth of the older addict group.

Although no followup data on the Roosevelt program have been published as yet to affirm or reject this speculation, Capel and Peppers (1978) conducted a study on the methadone maintenance clinic population in New Orleans that is germane. They found a steady increase in the number of addicts enrolled in the methadone clinic program in the older age categories over the 7-year period from 1969 to 1976. The results indicated a rather sharp increase in the treatment population of the 45-to-59 age group from 4.5 percent in 1969 to 9.3 percent in 1976, with the proportions more than doubling. The number of persons in the over-60 group is quite small (N=12), but this represents an increase from 0.5 percent of the clinic population in 1969 to 1.2 percent in 1976. At the same time, the proportion of patients in the 37-and-under group declined by almost 7 percent. These data indicate an overall aging trend with the greatest differences evident in the decline of the number of younger patients and the increase in the 45-to-59 age category--a group that will soon be elderly.

In addition, Capel and Peppers examined the "holding power" of the methadone clinic for individuals who were enrolled in the program during 1969. They found that a somewhat larger proportion of those in the older age groups had remained in the maintenance program than had younger clients. Of 82 patients between the ages of 38 and 44 in 1969, 36.6 percent were still active in the program (although they have now shifted to the next age category). Thirteen of the 30 patients (43.3 percent) who were between 45 and 59 in 1969 were still active in the program during 1976. Of three patients over 60 in 1969, only one remained in the program 7 years later. These data led Capel and Peppers to conclude, "If the present 'holding rate' [of the clinic] continues, we can expect, within the next 10 years, that the number [of addicts] over 60 will have tripled or quadrupled its present size."

Illegal drug use among older persons is obviously an underresearched topic. Although a few studies of rather limited scope have been conducted, unfortunately there is currently no reliable documentation of the nature and extent of illicit drug use among the elderly. While illegal drug use is generally seen as less of a problem for older than for younger adults, it is clear, however, that enough evidence exists to argue that the use of illicit drugs among the elderly cannot be ignored, particularly as the number of elderly illegal drug users is likely to increase over the next two decades. The use of illegal drugs by the elderly deserves much more attention in terms of basic research, as well as in the areas of prevention and treatment, than the topic has received to date.

DRUG	Heroin
SAMPLE SIZE	697
SAMPLE TYPE	Older street addicts and/or criminals versus younger ones
AGE	Adolescents; young adults versus mature adults (50 and older)
SEX	Male
ETHNICITY	Mostly white
GEOGRAPHICAL AREA	Miami, Florida
METHODOLOGY	Comparative study; correlational study
DATA COLLECTION INSTRUMENT	Structured interviews
DATE(S) CONDUCTED	1977 and 1978
NO. OF REFERENCES	44

PURPOSE

Since most known criminals are young people, views of older offenders are particularly restricted. In popular imagination and social science alike, older offenders are forgotten or ignored. The images that do exist are from classic literature and popular entertainment (e.g., old Fagins and "godfathers"). However, the range of older criminal offenders is both differently distributed and far more expansive than depicted in these images. The Federal Bureau of Investigation's Uniform Crime Reports, despite their incompleteness, document the existence of aging offenders in virtually all types of criminal activity. These reports and other research also indicate that crime, drug use, and their interrelationship in street life are by no means an exclusively youthful phenomenon.

The purpose of this paper is to provide a cross-comparative analysis of the four major categories of older men in street populations: street addicts, nonaddict street criminals, professional thieves, and men on Skid Row. The authors first seek to integrate theories of existing literature and then to present research findings in support of the hypothesis that age-associated dissatisfactions motivate older men to drop out of the drug subculture.

METHODOLOGY

The sample for the study encompassed 697 men known to be heroin abusers or criminally active individuals. The subjects were interviewed using a structured 40- to 50-minute interview schedule on local streets of Miami, Florida, in 1977 and 1978. The sample was divided into four age categories--15-24, 25-34, 35-49, and 50+--and the categories were then differentiated by demographic, crime-related, and drug-related background variables, as well as by current drug use preferences. Of the males interviewed, 42 were aged 50 and older.

RESULTS

Categories of older men in street populations. Generally speaking, the people who are "on the street" in run-down inner cities vary widely but share three factors in common: disapproval of conventional society, an operating locale, and a central concern with making a living through one deviant means or another. Street life is also characterized by drug use and youth. Drug dependence is a subsidiary of, if not actually a direct function of, an individual's attraction to the street addict way of life. Heroin is at the center of this subculture, but much less because of heroin use than because of the sociocultural pattern surrounding its use. For the heroin-using professional thief, heroin is an individual adaptation common within the subculture but essentially peripheral to it. While the professional thief uses drugs for pleasure in a life devoted to crime, the street addict commits crime as a part of a life devoted to obtaining heroin. For the nonaddict, criminal drug use is similar to that of noncriminal individuals from the same sociocultural background: alcohol is the preferred drug and drug dependence is disapproved. For men on Skid Row, alcohol is as central as heroin is to the street addict.

Patterns of drug use. The primary drugs of concern for older men on the street are similar in general type and function to those of greatest concern among the conventional elderly. Although few older men on the street use prescription drugs specifically, a good many are involved in alcohol use and a significant minority use street drugs having effects similar to the prescription sedative-depressants seen as especially problematic for older people in "acceptable" society.

Age and drug use. As each of the separate street groups age, their numbers decline, but to different extents and for different reasons. Whole subcultures may die out when, as in the case of professional thieves, police improvements and strict legislation limit their field of operation. The decline in the number of older Skid Row men is attributable to changes in the environment of the subculture (e.g., urban renewal projects and the decline of railroads as a means of transportation).

Another reason for the decline in numbers, dropping out, has been a controversial phenomenon. However, the assorted theoretical and empirical contradictions in literature on aging addicts can be integrated into three points of agreement. First, addicts are more likely to leave the street-addict subculture as they become older. Also, although a variety of specific motives may be involved in dropping out, all essentially can be reduced to some kind of dissatisfaction with the street-addict lifestyle. Third, dropping out may be related to factors not under the addict's direct control, such as differences in heroin availability, arrest, or treatment.

A central issue links age-decline with the case of a whole subculture's dying out. Specifically, in both types of decline, the subculture is in some sense not working adequately for the older man still on the street. For addict and nonaddict street criminals, the consequence is dissatisfaction and the desire to leave; for professional thieves and men on Skid Row, the consequence is increased difficulties in the normal pattern of making a living and thus the failure to attract new members. The high mortality rates among street criminals reduce the ranks of older criminals and addicts still further. Older addicts might be motivated to drop out by the perception that new recruits are different and that their accumulated cultural knowledge is no longer valid.

The author's study examining whether younger street criminals differ from older ones tends to support the "younger is different" hypothesis. In contrast to younger subjects, older criminals in the sample examined were typically white, were not native to Miami, and had not finished high school. They had begun their criminal careers later, committed crimes less frequently and with less violence, and were arrested more often than younger cohorts. Both aging heroin users and older nonaddict street criminals began heroin use at a later age, experimented with fewer drug types, and used lower amounts of drugs than younger men.

These findings support the contention that differences in age cohorts increase older addicts' dissatisfaction with the available social support for their lifestyles and the discrepancies between their subcultural knowledge and street reality, giving them a motivation to drop out that does not exist for younger addicts.

Future implications. The present analysis has several implications for future drug use among older drug users in the street population. Drug use for older addicts will shift to another form: Skid Row drinkers will become indistinguishable from other alcoholics. Also, older men in the street population will continue to be a subject for research because of continual change in cohorts. Finally, the street culture may become more unified than the diverse collection of subcultures that presently exists.

CONCLUSIONS

According to the synthesis of literature and the study results presented, aged addicts tend to leave the street culture in which they have spent most of their adult lives. They do so because both the subculture and the new recruits to that subculture have changed and no longer meet their needs for social support or correspond to their accumulated perceptions of street reality. The dissatisfaction that motivates older addicts to drop out of the street culture might be used as the basis for programs to rehabilitate them.

DRUG	Opioids
SAMPLE SIZE	248
SAMPLE TYPE	Users
AGE	Young adults; mature adults
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	San Antonio, Texas
METHODOLOGY	Longitudinal survey; literature review
DATA COLLECTION INSTRUMENT	Program/clinical statistics
DATE(S) CONDUCTED	1964-1967
NO. OF REFERENCES	21

PURPOSE

The maturing-out hypothesis is often mentioned in the literature on opioid dependence. This hypothesis, which was proposed by Winick in 1962, was based on the observation that many known narcotic addicts apparently ceased narcotic use while in their thirties.

This paper examines the data from which the maturing-out hypothesis was developed, assesses the findings from subsequent studies related to the subject, and presents the authors' data from a longitudinal study of careers of 248 opioid users in San Antonio, Texas.

SUMMARY

Winick studied the age and duration of addiction of 7,234 addicts originally reported to the Federal Bureau of Narcotics in 1955 but not reported again during a 5-year period through 1960. He asserted that it was almost impossible for a regular narcotic user to avoid coming to the attention of authorities during any 2-year period. He noted that 45 percent of the inactive addicts were in the age group from 30 to 39 years, with a mean age of 35. Winick also showed that the inactive addicts in 1959 were somewhat older than the active addicts. He speculated that maturing out of addiction might be a function not only of age but also of length of addiction,

but further data analysis indicated that age rather than length of addiction seemed to predict the cessation of drug use. Winick also proposed that addicts began taking heroin as a way of coping with early adulthood's problems and later achieved emotional homeostasis permitting the cessation of narcotics. He further speculated that two-thirds of all addicts matured out of their addictions.

Subsequent followup studies and the San Antonio study have produced data on the frequency of maturing out, the age of maturing out, and the psychodynamic explanation. Several studies had indicated that only 3 to 11 percent of addicts remained continuously abstinent for periods of 5 to 10 years after hospital treatment, but from 25 to 43 percent were abstinent at the time of the followup interview. The San Antonio study followed the careers of 248 opioid users in San Antonio who were treated at the former Public Health Service Hospital in Fort Worth from 1964 to 1967. The percentage abstinent increased from 13 in 1966 to 21 in 1975. By 1979, 22 percent of the subjects had achieved 3 or more years of continuous abstinence, while an additional 11 percent had achieved 3 or more years of abstinence before later resuming heroin use. When the data were analyzed in a form similar to that used by Winick, it was found that it was possible for an opioid user to use drugs regularly for 2 years without being reported to the Bureau of Narcotics and Dangerous Drugs, the successor to the Bureau of Narcotics. Variations in the followup studies' results are attributed to the study groups used, the duration of the followup period, and the methodology used.

Studies show that opioid drug users stop using drugs at widely varying ages, from less than age 20 to 40 and over. No high rate of onset of enduring abstinence was evident in any particular age group, although increasing abstinence of 3 years or longer occurred with advancing age in some studies, the San Antonio study among them.

Researchers have variously identified reduced availability of opioid drugs; traumatic events, such as a relative's death caused by an overdose; adverse experiences; and other events as the main factors associated with becoming abstinent. The San Antonio subjects usually described a combination of events, some external and some internal, as the major factors in their becoming abstinent. Factors included adverse events such as convictions and failures, religious conversions, weariness with the effort needed to obtain drugs and other effects of advancing years, improvement in medical conditions, and awareness of maturing. Others attributed their abstinence partly or wholly to the help of a wife, to peers at work, or to therapy. The researchers observed other conditions that probably facilitated abstinence, including relocation away from their usual source of drugs, evangelical religious participation, employment with a drug abuse treatment agency, probation or parole, and substitution of alcohol for drugs. All the reasons suggested by Winick overlap but do not include all the reasons offered in the studies cited.

CONCLUSIONS

It appears that Winick overestimated the proportion of addicts who mature out of their addiction, but subsequent studies have confirmed that a substantial minority of addicts do achieve continuous abstinence for 3 years or more. The onset of this abstinence does not seem concentrated in the group aged 30 to 39 but gradually increases in frequency with advancing age. Since no study has followed a cohort of addicts until death, the lifetime incidence of prolonged abstinence is unknown. It has been found that continuous abstinence for 3 years or longer does not ensure lifetime abstinence. Diverse conditions and motives seem to prompt and maintain abstinence.

DRUG	Opiates; methadone
SAMPLE SIZE	Varied in studies cited
SAMPLE TYPE	Addicts in methadone maintenance programs
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Black; white
GEOGRAPHICAL AREA	New Orleans, Louisiana
METHODOLOGY	Longitudinal survey; secondary analysis
DATA COLLECTION INSTRUMENT	Clinic records; site visits
DATE(S) CONDUCTED	1969-1976
NO. OF REFERENCES	22

PURPOSE

With the epidemic outburst of opiate abuse beginning in the 1960s and continuing until the present, most attention concerning causes and prevention of addiction has been centered on the young. Research findings in the sixties suggesting that aged addicts mature out of their addictions distracted attention from a growing drug problem among the aged. Deemphasis of drug problems among the aged is also a consequence of the shift since the 19th century from the typically white, middle or upper class, middle-aged female addict to the young, black male addict predominating in the sixties and seventies. However, the development of methadone maintenance programs has permitted data to be gathered on demographics of both young and elderly addicts. Studies of maintenance programs have shown that a considerable number of street addicts do not mature out of addiction and that addicts over age 35 differ considerably from addicts under 35.

The present study follows up two earlier New Orleans studies on older addicts (conducted in 1969), devoting special attention to changes in addicts' age distribution between 1969 and 1976 and the various programs instituted to aid maintained clients.

METHODOLOGY

Study data were obtained from the 1969-1970 patient master list and records of the four major methadone maintenance clinics in New Orleans. Addicts enrolled in these programs are divided into four age groups: under age 38, 38 to 44, 45 to 59, and 60 or older. Percentages of enrollees in each age category were then compared from 1969 through 1976, and the histories of separate patients were traced to determine whether they remained in the program. Services extended to patients were also compared over the time interval. The age distribution sample encompassed 446 in 1969 and 979 in 1976, the sex and race sample 425 in 1969 and 882 in 1976, and the sample of persons continuously enrolled, 115.

RESULTS

Over the 7-year period, the proportion of patients in the under-38 age group declined slightly; the proportion in the 38 to 48 age group remained the same; the proportion in the 45 to 59 age group rose sharply; and the proportion in the over-60 group, although small, rose slightly. The percentage of males declined from 83.3 percent in 1969 to 75.3 in 1976, and the percentage of blacks rose from 59.1 to 69.8. The total pattern for continuation in the program indicates that a larger proportion of the older age groups remained in the maintenance programs than did their younger counterparts.

Changes were made in clinic orientation as it became evident that the facilities were becoming places for the drug culture to reinforce itself. All clinics were modified to provide individual, group, and family conference therapy. By 1976, a wide variety of health services had been instituted, urine screening tests were administered weekly, and complete blood tests were conducted once a year. Clinics also introduced educational tutoring programs and job placement services. The family counseling services appear to have contributed to the retention power of the programs.

Dosages at all methadone clinics showed a sharp decrease since the high-level maintenance doses of the 1969-1970 period, and within the age groups the dosages for the older groups stabilized at lower rates than for the younger groups. Street addicts in the older age group and not in the program reportedly maintained themselves at the same levels as in 1969-1970, frequently using hydromorphone (Dilaudid).

The overall number of persons in the 45 to 59 age group doubled between 1969 and 1976. If the present holding rate continues, within the next 10 years the number of addicts over age 60 will have tripled or quadrupled in size.

CONCLUSIONS

Findings suggest that increasing numbers of individuals over age 45 are remaining in methadone treatment in New Orleans. It appears that the longer individuals have been in a program, the greater are their chances of remaining there. Moreover, because older opiate users comprise a reasonably large number of persons unlikely to mature out of addiction, they must be regarded as an entity that future policy must take into account. Treatment programs for aging addicts must be adapted to long-time, low-dose users. Further, the unpleasant side effects of methadone, particularly uncomfortable for the aging, must be considered; other drugs, such as morphine or hydromorphone, might prove preferable. Policymakers should consider a few experimental programs using drugs other than methadone for maintenance of long-time addicts over age 60.

Capel, W.C.; Goldsmith, B.M.; Waddell, K.J.; and Stewart, G.T. The aging narcotic addict: An increasing problem for the next decades. *Journal of Gerontology*, 27(1):102-106, 1972.

DRUG	Opiates; hydromorphone hydrochloride
SAMPLE SIZE	38
SAMPLE TYPE	Aging addicts
AGE	Mature adults; aged (range: 48-73; mean: 58.9)
SEX	Male
ETHNICITY	White
GEOGRAPHICAL AREA	New Orleans, Louisiana
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	July 1971
NO. OF REFERENCES	11

PURPOSE

Opiate addicts tend to disappear from statistical view after the age of 45. This fact has led to development of the hypothesis that opiate addicts undergo a "maturing out" process after which they cease deviant behavior. The validity of this hypothesis, however, has been called into question by more recent findings suggesting that addicts over age 45 exist but that the older addict's lifestyle changes to protect illicit activity from public view. The present study examines the characteristics of a group of older drug addicts.

METHODOLOGY

The study sample consisted of 38 white male addicts between the ages of 48 and 73 enrolled during July 1971 in methadone maintenance programs in New Orleans. Two interview techniques were employed: tape recording entire conversations and recording essential demographic facts through open-ended question and answer interviews.

RESULTS

Only 5 percent of the total New Orleans methadone maintenance group was aged 45 or older. The older users participating in the study had a mean age of 58.9 years. Length of opiate use ranged from 13 to 55 years (mean: 35.4). All except three subjects had spent their whole lives in New Orleans. Six had never served jail terms, but others had served up to 9 terms (median: 3). The median number of years since last arrest was 9.

Eighteen of the subjects "fixed" at least once daily, with 2 reporting that they only used drugs once or twice a week. Hydromorphone hydrochloride (Dilaudid) was the most frequently used drug for 23 subjects, the second most frequently used for 6 subjects, and the third most used for 2 subjects. Heroin was the second most popular primary drug, followed by morphine and codeine. Most subjects (30) listed pushers as their main source of drugs, with physicians and friends in second and third places, respectively.

A total of 19 subjects received their primary income from a regular job, 5 lived on income from part-time work, 5 received social security, 3 received pensions, 3 were on welfare, and only 2 were forced to hustle. None reported stealing drugs.

Of the 38 subjects, 15 had never married, 10 were divorced, 11 were separated, only 1 was still married, and 1 was a widower.

All but four reported having used marijuana when they were younger. Few still used marijuana or amphetamines, preferring barbiturates instead when opiates were not available. Factors affecting first drug use were peer influence (39 percent) and curiosity (21 percent). The subjects first used drugs other than marijuana at a median age of 22.5 years.

A few of the addicts had become addicted before the passage of the Harrison Narcotics Act, and others had started when paregoric and other opiate mixtures were legally sold. The primary reason for use of hydromorphone was that, in contrast to heroin, it was cheap, had a constant dosage, and was pure. Older addicts had reduced drug intake for lack of funds, not because of drug availability problems or declining desire for drugs.

The future societal problems presented by older addicts are serious ones. With increasing drug use among younger people and the decreasing numbers of addicts now in treatment who die, become institutionalized, or go to prison, the number of older addicts will increase substantially. Such continued addiction can add a tremendous burden to the hard-pressed inner city and to crime costs when drug addiction is treated punitively. Consequently, new rehabilitation programs appropriate to the older addict group should be developed.

CONCLUSIONS

Findings indicate that opiate abuse among older inhabitants of New Orleans is greater than suspected but differs in pattern from abuse by younger groups. Older addicts tend to reduce the frequency of their use, to buy drugs with legally obtained funds, to prefer hydromorphone to unreliable street heroin, and to hide their habit from official notice. The use patterns do not appear amenable to any presently conceived treatment modality. The increase in drug abuse by younger persons suggests that the problem of the aging addict will become increasingly important in the next decades.

Capel, W.C., and Stewart, G.T. The management of drug abuse in aging populations: New Orleans findings. Journal of Drug Issues, 1(2):114-121, 1971.

DRUG	Multidrug
SAMPLE SIZE	44
SAMPLE TYPE	Elderly abusers
AGE	Mature adults; aged (over age 50)
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	New Orleans, Louisiana
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Not specified
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	9

PURPOSE

Like delinquency and psychopathology, drug addiction has been viewed primarily as a problem of young adults. Increasing concern about this problem has been traced to the spread of addiction among adolescents in the last decade.

Toward the end of the comparatively quiescent period from 1920 to 1960, Winick (1962) formulated the theory that addicts mature out of addiction with age, basing his assessment on the sharp decrease in the number of addicts over age 40 years. A strong correlation was believed to exist between age of addiction and duration of drug use; that is, addicts with an early onset of drug use would tend to use longer than addicts who began using in their thirties and forties. Addicts who exceeded 15 years of use ostensibly did not fit into the cycle of use.

However, the data for the maturing-out theory came exclusively from the records of the Bureau of Narcotics, which did not always maintain accurate data. More careful research in the wake of the drug abuse epidemic in the 1960s made it apparent that there were more older addicts than previously thought and that many were not known to the authorities. In addition, there has been a decrease in age of addiction onset, raising the possibility that the number of long-time narcotic users may increase.

The present study examines the characteristics of the older addict population in New Orleans, which, unlike other addict populations in the United States, is homogenous. Information derives from the literature and a review of a recent study of addicts.

METHODOLOGY

The sample from the study reviewed consists of 44 addicts 50 years of age and older who had been addicted for a number of years; the mean number of years of addiction was 36.

RESULTS

In general, the number of deaths observed among narcotic addicts is much greater than expected by age-sex-race-specific probabilities, but little of the increased death rate is directly attributable to narcotic use. The percentage of addicts dying from overdose is strikingly small in addicts over age 50.

Statistical evidence indicates that the length of addiction is clearly linked with abstinence: the later in life that individuals become addicted the shorter the average number of years they remain addicted.

The number of active narcotic addicts 40 years old or older is about 500 (about 6 percent of the total addicts). The largest increase in heroin use has been among central city blacks, with large rises in younger users. According to estimates, the addict population over age 65 will grow by 150 per year after 1980.

Results of the New Orleans study indicate that older addicts are long-term users of narcotics with firmly held beliefs in their identity as drug users, even though they may be using at a level below that considered addicting by most medical standards. Apparently, the craving for drugs is not uncontrollable, and even outside a restrained situation (such as jail) a degree of abstinence is possible without total renouncement of the user lifestyle. Nevertheless, older addicts are still concerned with "scoring" and meet with user friends to discuss drug use. They remain part of the drug culture for the rest of their days.

Old addicts tend to be unmarried, and a large percentage have never been married. The next generation of older addicts, however, will be more likely to be or to have been married. In addition, cases of both spouses being addicted will tend to increase.

Most older addicts began by using morphine and have tried nearly every type of narcotic available. Some use marijuana, barbiturates, and alcohol without becoming addicted to them, but none use hallucinogens. The present drug of choice for older New Orleans addicts is hydromorphone hydrochloride (Dilaudid), followed by codeine, heroin, and morphine. For most elderly addicts, obtaining drug supplies is difficult. Many of the illegal routes are closed to them because of their loss of agility and their great fear of arrest. Most support their small habits from legal employment. About 85 percent of the elderly addicts have not been arrested in more than 5 years.

Older drug users clearly handle their problem differently from younger abusers: the elderly are the least likely to stop using but pose the least danger to society. Maintenance therapy for older users might therefore be useful as a means of reducing petty crimes. Methadone is not an acceptable solution because of side effects such as nausea, constipation, weight gain, and myoclonic jerks in older patients. Such drugs as hydromorphone and meperidine (Demerol) might be considered instead, possibly dispensed by prescription. Regular drug sources may contribute to regular habits and to the overall health of elderly abusers.

CONCLUSIONS

The already sizable addict population over 50 years old in New Orleans is likely to grow rapidly, as is the case in many other urban areas. Because older addicts exhibit characteristics much different from those of younger users, they should be treated differently. Maintenance therapy may be the best treatment modality for the elderly addict.

DRUG	Narcotics
SAMPLE SIZE	137
SAMPLE TYPE	Addicts
AGE	Young adults; mature adults; aged (mean: 53)
SEX	Male
ETHNICITY	Chinese American
GEOGRAPHICAL AREA	Lexington, Kentucky
METHODOLOGY	Retrospective survey
DATA COLLECTION INSTRUMENT	Hospital records
DATE(S) CONDUCTED	July 1957-June 1962
NO. OF REFERENCES	13

PURPOSE

The existence of diverse types of narcotic addicts in the United States has been well established. This paper examines the social characteristics of the Chinese drug addicts in the United States. In addition, the implications of narcotic use among this minority group are considered.

METHODOLOGY

From 1935 through 1964, over 800 Chinese male narcotic addicts were admitted to the U.S. Public Health Service hospital in Lexington, Kentucky. The study sample consisted of the 137 Chinese male addicts who were discharged from the Lexington hospital between July 1957 and June 1962. Data on each patient were obtained from the hospital's medical records. Most of the addicts were from New York City; 35 were from other cities. The mean age was 53.

RESULTS

The addicts exemplify the sojourner way of life described by Rose Hum Lee (1960). Of Chinese birth and ancestry, these young men migrated to the United States to seek their fortune with

the intent of returning to their homeland and becoming landowners or businessmen. Sojourners are not interested in acculturation to the host culture; they generally live a segregated and alien way of life. The Chinese narcotic addicts in this study were unsuccessful sojourners. A total of 99 of the subjects had been born in China, and 1 or both parents of 94 percent had been born in China. The two common occupations of the addicts were laundry work and restaurant work. None was unemployed or had a full-time illegal occupation. Almost 90 percent were not living with family members.

Heroin was the main drug used, generally intravenously. The onset of addiction usually occurred before age 30, some 20 years before the current hospitalization. Over half of the addicts had also used opium. Use of barbiturates was uncommon, and no use of marijuana was recorded.

The typical addict had been born in South China and had come to the United States at age 20 to join his father and the community of sojourners. He spoke poor English and was industrious and thrifty. He tended to withdraw and insulate himself within the Chinese community. His jobs were unstable, and he worked irregularly when he was heavily addicted. He lived alone and moved often. He had little recreation, social life, or spiritual life. He had returned to China to get married, but his wife and children were left in China, partially dependent on him. He lacked the resources to effect a reunion.

He spent \$10 per day on heroin, which he secured from drug peddlers. To pay for it, he might borrow from his acquaintances or become involved in drug traffic and underworld associations. His records showed no violent crime or other comparable antisocial behavior. He came to the Lexington hospital as a voluntary patient, seeking treatment because of financial distress, inadequate drug supply, or deteriorating health. His withdrawal was uneventful and he left the institution against medical advice within 4 weeks' time, giving various excuses. He and the other Chinese patients formed an isolated community within the hospital.

CONCLUSIONS

Chinese narcotic addicts in the study have many characteristics that clearly distinguish them from other addict groups in the United States. They are foreign born and markedly alienated from American culture. In their later years, the addict sojourners find that their life goals are unattainable. Nevertheless, they were initially highly motivated and have been industrious workers despite the restricted opportunities available.

The high incidence of hospitalization of Chinese-American addicts at Lexington substantiated other literature reports of high opiate use by Chinese in the United States. This use has probably been associated with both an existing cultural pattern and restricted access to alternative modes of behavior. The recent marked decrease in narcotic drug abuse among Chinese in the United States, particularly since 1960, probably reflects the ongoing process of modernization of the Chinatown communities and the gradual dissolution of the old type of addict subculture hitherto fostered by these communities. This process has been furthered by the severance of cultural ties with the homeland after the Communists' takeover of mainland China in 1949.

DRUG	Opiates
SAMPLE SIZE	7,234
SAMPLE TYPE	Addicts
AGE	General population (range: 18-76)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Police and health agency records
DATE(S) CONDUCTED	1955-1960
NO. OF REFERENCES	12

PURPOSE

There is a considerable body of data on the age at which addicts begin taking drugs and on the age at which they are reported by law enforcement medical authorities as addicts. However, no studies exist on the age at which addicts stop taking drugs. Certain lay and professional circles accept the thesis that many addicts never stop using drugs but continue as addicts until they die, except for unsuccessful attempts at withdrawal. To clarify how addicts terminate their habits, the present study reports on the age at which a sample of drug users ceased taking drugs and the length of time their addiction was sustained.

METHODOLOGY

Study data derive from the records of the Federal Bureau of Narcotics, which is the only Federal agency to maintain a master file of all the opiate addicts in the United States from Federal, State, and local law enforcement and health agency sources. The study sample consists of 5,553 male and 1,681 female addicts originally reported during 1955 and reported again by the end of 1960. Ages recorded are the actual ages at the end of 1960.

RESULTS

Addicts become inactive at anywhere from 18 to 76 years of age, with the average age of inactivity being 35.12 years. The majority of addicts become inactive between age 25 and 43; the median age of inactivity is 29.7 years. Three-fourths of the dropouts occur by the age of 36.2. Age comparisons with active addicts indicate that the proportion of addicts who become inactive in each age group is not dependent on the proportion of addicts of that age group in the total active addict population but is a separate and different phenomenon.

The process by which many addicts cease taking narcotic drugs in their thirties can be called a process of maturing out of narcotic addiction. Becoming an addict in early adulthood enables the addict to avoid many decisions, to avoid learning a vocational skill, or to delay accepting family responsibilities. Addicts stop taking drugs when the problems for which they originally began taking them become less salient and less urgent. As a result of some process of emotional homeostasis, the stresses and strains of life become sufficiently stabilized for typical addicts in their thirties that they can face their problems without the support of narcotics. It is also possible that maturing out of addiction is at least partially a function of the cycle of the disease of addiction itself, which may take a number of years and be independent of the life cycle of the addict. Some addicts who have remained addicted for over a half a century cannot be accounted for with either model.

The data provide some clues about the relative failure of community efforts directed toward helping the adolescent addict. If the maturing-out hypothesis is valid, adolescents will always revert to drug use, as they will not be ready to stop.

Findings suggest that about two-thirds of all cases of addiction are self-limiting. Self-limitation may be a function of the addicts' life cycle or of the length of addiction. The difference between those who mature out of addiction and those who do not may also mirror the difference between addicts who struggle to abandon addiction and develop some insight and those who accept that they are hooked and make no effort to stop.

Geographic and other external factors may affect the extent to which a particular group of addicts either matures out of or reverts to narcotics use: the drug-use recidivism rate is 67 percent in Chicago, compared with 40 percent in New York City.

Further research is needed on sociological factors affecting maturing out, the life-cycle phenomenon, the effect of the addict's attitude toward addiction or maturing out, the fate of former addicts after maturing out, and exceptions to the maturing-out process.

CONCLUSIONS

Two-thirds of all addicts stop using opiates in their late thirties. The cessation of drug use may be the result of a maturing-out process, at the end of which the addict no longer feels pressured by the problems of young adulthood, which prompted the initial drug use. Addicts who continue use until an advanced age apparently do so because of their own accepting attitude toward their habit. The numerous factors that may affect the maturing-out process should be studied further so that more can be learned about the phenomenon of narcotic addiction.

**MISUSE OF LEGAL DRUGS AND
COMPLIANCE WITH
PRESCRIPTION DIRECTIONS**



MISUSE OF LEGAL DRUGS AND COMPLIANCE WITH PRESCRIPTION DIRECTIONS

Frank J. Whittington, Ph.D.

Of most concern for an understanding of drug problems among the old is the unintentional misuse of legal drugs--pharmaceuticals obtained, either through a physician's prescription or over the counter, for the purpose of curing disease or alleviating symptoms. Such misuse can have devastating effects on the older patient who is the unwitting victim of the physician's inadequate knowledge or unconcern or difficulties experienced by the medical custodian in managing the patient's regimen, or the patient's own lack of understanding, skill, or care. Misuse, then, can occur in a number of different ways and in different arenas, but it always involves some defect in the prescription, acquisition, or administration of the drug.

The two primary agents most likely to be responsible for drug misuse are the physician and the patient. While other agents such as nursing homes and family members are certainly involved in and precipitate misuse by older people, misuse in nursing homes will be dealt with only briefly and there is so little published information about the role of family members in drug misuse that this subject will not be addressed here.

In general, the misuse of legal drugs takes four forms--overuse, underuse, erratic use, and contraindicated (or inappropriate) use (Petersen et al. 1979a). Patients who overuse drugs either take more types of drugs than necessary, take more than the prescribed amount of one drug, or take a prn (as needed) medication when it is not actually needed. Underuse includes the failure to acquire and take prescribed medications as well as the consistent failure to take as much of the drug as the doctor prescribed. Erratic use means that the patient generally fails to follow instructions. The term includes missed doses (undermedication); double doses (overmedication); and drug confusion, which is taking the wrong drug by mistake, or taking doses at the wrong time, by the wrong route of administration, or with the wrong liquid. Contraindicated drug use occurs when the patient takes a drug that is inappropriate, either because it is unnecessary or because it is potentially harmful. This can occur when the older patient self-medicates incorrectly or when the physician prescribes the wrong drug--one that is ineffective, produces a harmful or unwanted side effect, or interacts negatively with other medications being taken. Obviously, these four types of drug misuse are not mutually exclusive, and an older patient may experience more than one at a time. It is assumed, however, that most patient-caused misuse stems from the patient's regular pattern of excessive use, underuse, or erratic use. Although such misuse could be found among persons of almost any age, older people have certain characteristics, attitudes, and behavior patterns that make them particularly prone to most of these types of medication misuse.

The actual extent of drug misuse among older people is difficult, if not impossible, to determine accurately. While some data are available relating to physicians' prescribing habits and patients' compliance with their doctors' orders, and these will be reviewed, such general epidemiological data as do exist are often suspect, due either to a selection bias, as in studies of those seeking help in clinics or hospital emergency rooms, or to the possibility of inaccurate self-reports in sample surveys. Moreover, it is impossible with such data to distinguish misuse due to physician error from that arising from some aberration of the patient. Nevertheless, a sampling of these findings will now be presented.

It is often assumed that the disproportionately high rate of consumption of legal drugs by older people is likely to lead to a correspondingly high rate of misuse of these substances (Pascarelli and Fischer 1974; Petersen and Thomas 1975; Brady 1978). There is, however, little evidence to support this assumption. Two studies that do report significant levels of apparent misuse among older people are both based on observations of patients admitted for treatment. Learoyd (1972) found that almost one-fifth of the older persons who entered a geriatric unit in a general hospital in Australia were diagnosed as having a prescription drug-related disorder, and Raskind (1976) reported that 26 percent of the patients admitted to his clinic in Seattle with acute organic brain syndrome were found to be suffering from an adverse drug reaction.

On the other hand, several other studies with larger, more representative samples discovered relatively small percentages of misuse among older people. Heller and Wynne (1975) examined national data reported by hospitals and emergency rooms through the Drug Abuse Warning Network (DAWN), a national reporting system jointly sponsored by the National Institute on Drug Abuse and the Drug Enforcement Administration. They found that during the first half of 1973 only about 6 percent of the reported drug incidents in which barbiturates-sedatives, tranquilizers, and drug-alcohol interactions were the precipitating cause involved people over 50. These findings were confirmed by Petersen and Thomas (1975) in a study of a hospital emergency room in Miami during 1972. They found that only 5 percent of their sample of people seeking treatment in a hospital emergency room for a drug-related problem were 50 years old or above. In a followup of this study, Inciardi and his colleagues (1978b) analyzed data collected in the same emergency room over a 4½-year period and found that, out of a total sample of nearly 10,000 cases, people over 60 accounted for only 2.6 percent.

However, not all cases of misuse result in a reaction serious enough to warrant emergency treatment, and many are probably not even realized to be drug related; reactions may be mistaken for symptoms of old age. Many others are undoubtedly managed in some way at home and never come to official medical attention, so the true extent is impossible to estimate from such studies. Only one study (Stephens et al. 1981) has attempted to determine the prevalence of misuse among a representative sample of older people in one city, and even this investigation is limited to psychoactive medications and has some methodological limitations. Stephens and his colleagues surveyed 1,101 noninstitutionalized residents of Houston who were 55 and over and classified roughly 7 percent of them as "inappropriate users" of prescribed psychoactive drugs. While this is a relatively small proportion of the total sample, it represents over 40 percent of those who were users of psychoactive drugs. As these authors point out, "the evidence does suggest that once a person in this age group begins to use a psychoactive drug, there is a relatively large chance that s/he will become a misuser. . . ." (Stephens et al. 1981, p. 191). While it was impossible for these researchers to determine whether this misuse was patient- or physician-caused, they did note that approximately 86 percent of these misusers were classified as overusers. Since the drugs were prescribed psychoactives that had been in use for an extended time, this fact seems to implicate the physician as an overprescriber more than it suggests the patient to be an overuser, though both probably bear some responsibility.

Several researchers have identified types of drugs most likely to be involved in misuse. Petersen and Thomas (1975) found that all of their sample of middle-aged and older persons presenting to the hospital emergency room for treatment did so because of an adverse reaction to a legal drug and that over 80 percent of the cases involved prescribed psychoactive drugs (primarily sedatives and minor tranquilizers); another 10 percent involved the nonnarcotic analgesic, propoxyphene hydrochloride (Darvon). Inciardi and his colleagues (1978b) found essentially the same pattern in their followup study. Confirmation of these findings comes from data compiled through DAWN indicating that 14.5 percent of the drug-related deaths of older people reported through the system in early 1976 were attributable to barbiturates--and that when barbiturate-other hypnotic combinations are included, the figure climbs to almost 20 percent (Eisdorfer and Basen 1979). Finally, Hemminki and Heikkila (1975) report misuse to be most likely when drugs are expensive, used mainly to control symptoms, and likely to produce side effects.

Much of the literature on drug misuse among older people focuses not on the patient but on the patient's physician and on the prescription process. It is generally conceded that, although there are many well-trained, knowledgeable, concerned, and careful physicians whose habits in prescribing drugs for their older patients are beyond reproach, there are many others who lack these characteristics and whose prescription practices and, more importantly, results, leave much to be desired (Pascarella and Fischer 1974; Heller and Wynne 1975; Basen 1977; Green 1978; Brady 1978; Bourne 1979).

The mechanisms of physician-initiated misuse generally involve either technical errors in the actual selection or prescription of the pharmaceutical agent or behavioral errors made during the process of prescribing and communicating the prescription instructions to the patient. Technical errors include such practices as (1) selecting an inappropriate medication for the older patient (Barton and Hurst 1966; Daniel 1970; Pascarella and Fischer 1974; Castelden et al. 1979); (2) prescribing too high or too low a dose for the older patient (Daniel 1970; Butler 1975; Fracchia et al. 1975; Schuckit 1977; Castelden et al. 1979); (3) prescribing too many different drugs at one time (Morrant 1975; Hemminki and Heikkila 1975; Krupka and Vener 1979a; Wieland 1979); and (4) failing to know or check the drug's potential for causing an adverse reaction in the older patient, due either to its interactive or side-effect potential (Learoyd 1972; Pfeiffer

1978; Lamy 1978, 1979a). Prescription errors can also arise during the prescription process and occur in several ways. First, the physician may fail to check the patient's drug history and current drug regimen and drug-taking habits, including prescription and over-the-counter drugs and alcohol (Lamy and Vestal 1976; Wieland 1979). This can lead to prescriptions of medications that duplicate others that were prescribed by another doctor and are already being taken (Pascarelli and Fischer 1974; Raffoul et al. 1981; Michigan Offices of Services to the Aging and Substance Abuse Services 1979), or, as indicated above, it can lead to medications that have a high potential for interaction with other drugs being taken concurrently (Lamy and Kitler 1971a; Lamy 1979a; Guttman 1977). Second, the physician may habitually prescribe over the telephone without actually examining the patient (Basen 1977): This can be particularly risky for older patients whose health status is subject to rapid change. Third, the physician often fails to give adequate instructions, either oral or written, for how and when the medicine is to be taken, what it can be expected to do, how soon results should be noticed, what, if any, untoward reactions the patient might notice, and what, if anything, he or she should do in that case (Lundin 1978b). Finally, the physician may err by allowing automatic or telephone renewals of a prescription over too long a time without an in-person recheck of the patient's physical or mental status (Basen 1977).

Many of these so-called errors are possible with younger as well as older patients, and a few involve standard medical practice necessitated by the press of everyday medical responsibilities. However, the elderly have several characteristics that make them particularly vulnerable to such mistakes and oversights. Drug interactions are particularly likely in older persons, since they more frequently suffer from a number of concurrent chronic medical conditions and may be taking several medications simultaneously. Because of the elderly's slower rate of drug absorption, distribution, metabolism, and excretion, there is an increased prospect of drug intoxication, and drugs taken concurrently have an increased chance of producing an effect on each other (Lamy 1979a; Cadwallader 1979). Furthermore, the risk of physical and/or psychological side effects from many drugs commonly taken by the elderly is relatively great (Lamy and Kitler 1971a; Ziance 1979). In addition, the generally lower educational level of older people, their higher probability of having cognitive deficits, and their greater likelihood of viewing the physician as a powerful authority figure, and so adopting a respectful, uncritical, and unquestioning posture toward the doctor, all work to make the doctor's job of communicating vital prescription information and instructions to the elderly patient all the more difficult.

A heavy share of the responsibility for physician-initiated drug misuse involving older patients must rest with the physicians themselves. While some physicians are gaining an understanding of the special drug problems faced by geriatric patients, most hold the same negative stereotypes toward old age and the elderly as do members of the larger society. There is also a general tendency to confuse disease processes and aging processes by attributing disease-related (and sometimes drug-induced) symptoms to old age, about which, in the prevailing view, nothing can or need be done. And, finally, most physicians, like most other people, need the reward of achieving success--of effecting a cure. The elderly, however, afflicted primarily with chronic illness, hold out little promise of such success. For these reasons, many doctors prescribe for physical or emotional complaints that are symptomatic of either the physiological, psychological, or social process of aging. Like their patients, they rely far too often on medical solutions to problems that are essentially nonmedical in nature (Bernstein and Lennard 1973).

The extent of physician-related misuse is difficult to determine. There is a lack of information describing the actual therapeutic encounter between the doctor and the older patient, but two surveys present at least the patient's memory of what generally occurs, and one also presents limited data from the physician as well as the perceptions of other health practitioners. Doyle and Hamm (1976) questioned 405 older persons (60 and over) in three Florida counties about events related to their receiving prescription drugs. They found that nearly 72 percent did not routinely inform their physician if they were already taking a medication prescribed by another physician. In fact, only 13 percent stated that they saw their physician in person. In order to obtain a prescription, most either called the doctor themselves to get it or had their pharmacist call for them. And, when filling a prescription, 75 percent did not question the pharmacist about the drug's action, its possible side effects, or even its cost.

The Michigan Offices of Services to the Aging and Substance Abuse Services (1979) surveyed 371 persons aged 60 and above who lived in Michigan, also asking them about their impressions of their visits with the doctor. Compared to the Doyle and Hamm study, a slightly higher percentage of these seniors (77 percent) never discussed medicines prescribed by one doctor with another doctor, although 32 percent reported that they were currently taking medications

prescribed by two or more physicians. Even more striking is the fact that 60 percent of this sample said that they themselves had initiated any discussion that had occurred with their doctor concerning drugs, and 57 percent claimed never to have discussed drug interactions with the doctor. This, however, does not agree with the reports of the physicians also surveyed at the same time, 75 percent of whom said that they did regularly discuss drug interactions with their older patients. It is, of course, impossible to determine whose memory is better on this point, but the opinions of other health and social workers tend to bear out the word of the older persons: Large proportions of the surveyed pharmacists (82 percent), service workers for the aging (83 percent), and nurses (78 percent) felt that, in their experiences working with older people taking prescribed medications, the information they had received from their doctors regarding their drugs was not adequate. However, to confuse the picture even more, the seniors surveyed overwhelmingly agreed (88 percent) that their physicians did discuss with them how long to take their medicines, and 73 percent were, in general, satisfied with the information given to them by their doctors. This latter may mean only that older people's expectations of their physicians are quite low. Such a conclusion would be supported by Lundin's (1978b) study of 50 older patients living independently in their own homes. She found that none of those interviewed had been given written instructions by their doctors to supplement the label directions. Yet 110 of the 170 prescription medicines these people had when interviewed (65 percent) either did not have directions on the label or they said only to be taken as directed.

But what of the notion that physicians often make technical errors by prescribing the wrong drug or the wrong dose? Again, few investigators have attempted to study this, and most of those who have, have done so within an institutional setting, usually a nursing home. One of the earliest and most often cited studies is that of Barton and Hurst (1966) who found that chlorpromazine (Thorazine), a major tranquilizer, was practically useless in the relief of psychic symptoms in their small sample of elderly institutionalized women. They concluded that as many as 80 percent of geriatric mental patients may be the recipients of unnecessary tranquilizer prescriptions. In an even earlier study of hospitalized geriatric patients in Massachusetts, Kastenbaum et al. (1964) had found no cognitive improvement through the administration of either a stimulant, dextroamphetamine sulfate (Dexedrine), or a major tranquilizer, thioridazine (Mellaril).

While Daniel (1970) does dispute these findings and their conclusions, he himself presents data to show that major tranquilizers are often misprescribed, both in intent and dose. In addition, Castleden et al. (1979) present compelling evidence from their own and other studies that hypnotics (defined by these authors as sedatives and tranquilizers) are vastly overprescribed and either cause significant harm or represent a real danger to the older patients who receive them.

In addition, there is mounting evidence that older persons in nursing homes and other long-term care facilities are receiving too many prescribed drugs, especially psychoactive medications. Beginning in the early 1970s, a large amount of testimonial evidence of the overuse of such drugs was presented before hearings of the Subcommittee on Long-Term Care of the U.S. Senate Special Committee on Aging (published in Moss and Halamandaris 1977). During the same period, other writers described in detail the patterns and results of these overprescription/overuse practices (Townsend 1971; Stannard 1973; Pfeiffer 1973), and, somewhat later, reports documenting such practices began to appear in the research and professional literature (Fracchia et al. 1975; Ingman et al. 1975; Covert et al. 1977; Milliren 1977; Krupka and Vener 1979a; and Creedon 1980). The thrust of most of these research reports was that some patients were prescribed psychoactive medications unnecessarily, and others received dosages that were too high. Ingman and his colleagues (1975), for instance, found that 23 percent of the 131 patients in an extended care facility had been prescribed at least one drug the authors termed "not recommended." Further, they noted a clear decline in the average number of drugs prescribed per patient (from 5.8 per day to 4.9) when physicians were required to rewrite all medication orders every 30 days.

It is often suggested by these authors, as well as others (Learoyd 1972; Gubrium 1975), that overuse of psychoactive medications by institutionalized older persons is mainly because of the staff's desire to control "agitated," unruly, or demanding patients and not simply because of physicians' mistakes. As Milliren (1977, p. 210) concludes, "The different patterns of administering tranquilizers to males and females reflect different problems of social control for the staff in dealing with male and female patients." Indirect support for this position was presented by several studies that found the level of psychoactive use among patients in a long-term care facility not to be related to patient characteristics such as diagnosis or health status (Fracchia et al. 1974; Creedon 1980). Ingman and his colleagues (1975) even found such use to be greater among the healthier, more active patients, presumably those still physically capable of creating problems for the staff.

A final problem in the institutional setting, one that is normally outside the physician's control, is that of errors in the administration of drugs. Normally a task performed by a nurse or licensed medication aide, drug administration has been shown to be, in many nursing homes, a very haphazard affair with error rates estimated at from 22 percent (Kayne and Cheung 1973) to 50 percent (Crawley et al. 1971) of all doses administered. Such errors generally involve either contraindicated or erratic use; they may be grave and potentially life threatening, such as giving a patient the wrong drug, giving a drug to the wrong patient, or giving a patient too large a dose, or they may be less crucial though still significant, such as giving doses too early, too late, with the wrong liquid, or by the wrong route of administration. Reportedly, such errors occur because of poor medication control procedures, heavy workloads, lack of staff training, and use of unlicensed aides to distribute medications (Stannard 1973; Gubrium 1975; Moss and Halamandaris 1977; Thomas 1979).

As noted above, the older patient is an important part of the therapeutic relationship--with perhaps a more important role than the physician--because the patient who administers his or her own medications has many opportunities to thwart the physician's best efforts by misusing the drugs in some manner. This can occur in a number of ways. First, and most commonly, the older person may fail to comply with the physician's instructions for how to take the medication; this can of course involve overuse, underuse, or erratic use of the drug. Second, older patients sometimes are found to hoard their medicines, either through inadvertent underuse or intentional stockpiling for some future contingency. In addition, sharing of medicines by friends and relatives is also relatively common, with some persons thought to be primarily borrowers and some typically lenders. Finally, a fairly common problem and, according to Warren (1979) and Lofholm (1978), a potentially quite dangerous one, is that of self-medication--the practice of diagnosing one's own ailments and "prescribing" one's own medications, a practice that usually involves over-the-counter preparations.

The extent of drug misuse precipitated by the older patient (like physician-caused misuse) is impossible to gauge accurately. While several researchers have studied compliance rates and a few have even attempted to measure hoarding and lending behavior, only Raffoul et al. (1981) have summed most observed types of drug misuse to produce a single aggregate. In their study of 67 prescription drug users in Fayette County, Kentucky, they found an overall misuse rate of 43 percent; however, when the nonusers in the sample are included in the base, the misuse percentage drops to around 28 percent.

Most investigators of this phenomenon have concerned themselves with the compliance rate alone. Several writers (e.g., Hussar 1975) have theorized that since noncompliance is known to be highly correlated with several traits common among the elderly, including chronic illness, living alone, psychiatric illness, and polydrug therapy, it stands to reason that the elderly are relatively likely to be noncompliant. And, in fact, a number of researchers have presented data that appear to support this hypothesis. Latiolais and Berry (1969), studying 180 poor outpatients in a university hospital, found the elderly to be significantly more likely to fail to comply with medication orders than younger patients. Also presenting confirmatory findings that show older persons more likely than other age groups to fail to follow doctors' orders were Schwartz et al. (1962), Neely and Patrick (1968), and Brand et al. (1977). Others report gross levels of noncompliance among older samples ranging from a low of 7 percent in a study of psychoactive drug misuse (Stephens et al. 1981) to 50 percent for patients using either psychoactive or "symptomatic" (for control of symptoms) drugs (Hemminki and Heikkila 1975) and even as high as 57 percent (Doyle and Hamm 1976). However, Prentice (1979) has reviewed some of these as well as several other studies, particularly with respect to their revealed age pattern of compliance within the older population and concluded, "In general, the studies cited are too inconsistent to make any conclusive statements about the relationship between age and noncompliance." (Prentice 1979).

Data on patterns of noncompliance fairly consistently describe underuse as the most common form. Schwartz and her associates (1962) found that 47 percent of the medication errors committed by the older persons in their sample involved failure to take the medication as often as prescribed. The next most common error, defined by these researchers as "innaccurate information" about their drugs, was found to occur 20 percent of the time, or less than half as often. Hemminki and Heikkila (1975) also found underuse, along with self-adjustment of dosage, to be the most likely form of noncompliance, and the Michigan Offices of Services to the Aging and Substance Abuse Services (1979) found that 30 percent of the subjects reported that they occasionally stopped taking a drug sooner than the doctor had directed, and 14 percent had varied the dosage (presumably downward). Raffoul et al. (1981) reported that some form of underuse

accounted for 72 percent of all instances of misuse they observed. Finally, Stephens et al. (1981) reported that underuse was the overwhelmingly most common manner of noncompliance in their sample, with 87 percent taking less than directed. They point out, however, that when taking psychoactive medications, which were the focus of their study, underuse was not dangerous, whereas the 13 percent of their sample who reported overuse were taking greater risks.

Very little data exist on other forms of noncompliance and misuse. Schwartz and her colleagues (1962) reported that incorrect dosage accounted for 10 percent of the medication errors observed and incorrect sequence or timing of the dose 4 percent. Schwartz et al. (1962), Hemminki and Heikkila (1975), Stephens et al. (1981), Raffoul et al. (1981), and the Michigan Offices of Services to the Aging and Substance Abuse Services (1979) all found evidence of self-medication practices as patients reported that they sometimes varied the dosage (usually downward) to achieve some desired end. Castleden et al. (1979) suggest that hoarding of medicines is a significant problem. In their English sample they found that 47 percent of the homes of older subjects they visited for interviews contained prescription drugs, primarily hypnotics (as defined by them, minor tranquilizers); this figure far exceeds the proportion of such persons currently holding a prescription for such drugs and so indicates significant hoarding behavior. Interestingly, however, the rate among the old was far less than that of younger respondents (73 percent). The Michigan Offices of Services to the Aging and Substance Abuse Services (1979) also found a significant number of older persons (30 percent) who admitted to keeping prescriptions after their immediate need had passed, and 60 percent said at least that they might keep medicines in case they ever needed them again. Raskind and Eisdorfer (1976) report that sharing of medicine, particularly among residents of congregate housing facilities where there are high concentrations of older people, is common. However, the Michigan Offices of Services to the Aging and Substance Abuse Services (1979) reported finding that while 13 percent of their sample admitted that they had shared drugs, only 8 percent said that they would share in the future if someone else ran out of a drug that they both took, suggesting perhaps that 5 percent had repented of their past misuse.

Reasons for misuse by older persons are not altogether clear but some patterns have emerged. Schwartz and her colleagues (1962), basing their data on medication errors and noncompliance already reported, suggest three reasons for such misuse: (1) There were communication problems between doctor and patient; (2) The patient was not competent to administer his or her own medications; and (3) inadequate supervision of the older person's drug-taking habits was supplied by either a professional or family caretaker. Brand et al. (1977), on the other hand, found that the most important reason for noncompliance among their sample was economic. Over one-third (34 percent) reported themselves as unable to afford to buy or take as often as directed the drugs their doctors had prescribed. The Michigan Offices of Services to the Aging and Substance Abuse Services (1979) asked subjects why they had stopped taking a drug or varied its dosage, and 43 percent responded that they "felt better" when they did, 18 percent said that it was in reaction to side effects, and 10 percent said that they had just forgotten to take it. The older persons interviewed by Stephens et al. (1981) were a bit more direct: Over 48 percent said that they just "did not like" the prescription or the dose. This seems to indicate either a lack of communication between doctor and patient or, as George Maddox (1979) might suggest, that the patient actually did not like the doctor who prescribed it. Other patients reported self-medication patterns, saying that they took the drug when needed (23 percent), they got better results with their own way of taking it (6.8 percent), or they had bad side effects (4.1 percent). Only 9.4 percent named expense as a reason for noncompliance, and only 1.7 percent said that they forgot or were too busy. A final reason for misuse was documented by Raffoul et al. (1981), who found a significant positive correlation between level of misuse and having prescriptions from two or more physicians or having them filled at two or more pharmacies. This of course would indicate that the cause of misuse did not lie with the patient but, rather, with the professionals responsible for his or her care.

While a number of good studies have now been done documenting the extent of misuse (e.g., Doyle and Hamm 1976; Stephens et al. 1981; Raffoul et al. 1981; the Michigan Offices of Services to the Aging and Substance Abuse Services 1979), they do not always agree. One reason for this, aside from sampling differences, is their varied definitions of misuse. Another is the extraordinary difficulties in identifying and measuring misuse; observation is not possible and people are loathe to talk about not following instructions, particularly a doctor's. Emergency room and hospital admission studies are helpful, but they do not tell the full extent of misuse, only the number who present for treatment. Studies of extent must also seek to distinguish between misuse that is the patient's responsibility from that due to the physician's error.

Studies of physicians' prescribing habits for older people are few, and more should be attempted. It is the only way we shall ever know just how much of a role is played by the most central health practitioner. It would also be important to know whether there really is a relationship between training in pharmacology and geriatrics and good habits of prescribing for older people, as has been suggested. Finally, and maybe most important, there are few studies of the doctor-older patient relationship (for notable exceptions, see Haug 1981). We have only the speculations (no doubt well informed) of a number of writers and one or two studies of older patient reports to tell us what actually goes on during the office visit, particularly in relation to drug prescription, information, communication, and followup. This seems to be a crucial missing link in the chain of our understanding of the misuse phenomenon.

With respect to the older patient, the ways of misuse are fairly well known, but the reasons are not yet well understood. The 1981 Stephens et al. survey provides the best insight we do have, but it is limited to psychoactive drugs, and this presents only part of the picture. We have for some time now had some guesses about why older people cannot or will not use their drugs properly, but some of these reasons are apparently not so important as we had thought. For instance, poor eyesight and childproof containers are commonly assumed to be prominent problem areas. But seldom in the research literature is either issue even mentioned, and when it is, it is only to indicate its relative lack of salience.

As mentioned above, we suspect that many, if not most, older people who experience adverse drug reactions are managing them at home, but we do not know why or how or with whose help. In this connection there are no real studies of the role of the family in advising on, monitoring, or controlling the drug-taking habits of older people. There must be if we are to know where the real responsibility lies when misuse occurs and what the best solutions might be. Finally, very little published data describe use and misuse practices with over-the-counter drugs and home remedies. This would seem to be another area prime for research.

Lief, T.P.; Allen, H.D.; and Bloom, W.A., Jr. Drug abuse and the private practice of medicine. The International Journal of the Addictions, 16(4):731-739, 1981.

DRUG	Multidrug
SAMPLE SIZE	2,911 cases from 118 reporting physicians
SAMPLE TYPE	Cases of patients with drug abuse symptoms
AGE	Adolescents; young adults; mature adults; aged
SEX	Both
ETHNICITY	Cross-cultural
GEOGRAPHICAL AREA	New Orleans, Louisiana
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Questionnaire
DATE(S) CONDUCTED	April 1976
NO. OF REFERENCES	0

PURPOSE

Much valuable information on the problems that individuals experience as a result of drug dependency can be obtained from police and corrections departments, rehabilitation services, mental health centers, and public clinics. However, little is known about patients who take their drug-related complaints to private physicians. This study reports on such problems encountered by physicians in New Orleans, Louisiana.

METHODOLOGY

To obtain study data, researchers mailed questionnaires to 512 physicians practicing in New Orleans in April 1976. In all, 125 responses were received, and 118 proved usable. The questionnaire sought to establish what types of drugs were abused by patients and what type of patient abused each drug.

RESULTS

Physicians reported seeing a total of 2,911 persons with drug-related symptoms (mean: 26.4; median: 5.0). The largest group of respondents (29.7 percent) had seen no drug-related symptoms among their patients, but one physician had encountered 418 patients with drug problems. The vast majority had seen 10 or fewer such cases. The most frequently abused drug was alcohol, but a large number of minor tranquilizer cases were also detected, followed by cases of hypnosedative and cannabinol use. Hallucinogens and analgesics were the least frequently reported abused drugs.

According to the physicians' profiles, users of hallucinogens who sought help tended to be disproportionately white; black patients were more likely to have problems associated with minor tranquilizers, hypnosedatives, and analgesics. Oriental patients were likely to have difficulties with analgesics and narcotics, while hypnosedative and analgesic abuse was seen more often among Latin Americans. Patients with problems related to the use of hallucinogens and cannabinols were commonly males, while users of minor tranquilizers and stimulants tended to be females. Other drug groups showed a fairly even pattern of distribution.

Patients who seek help from private physicians, particularly those who abuse hypnosedatives, alcohol, analgesics, and narcotics, were concentrated in the older age groups (over 47 years old). In contrast, abusers of hallucinogens and cannabinols tended to be quite young and users of stimulants were generally between the ages of 18 and 37 years, probably reflecting the use of diet pills by individuals in these age groups. Abusers of minor tranquilizers were scattered throughout the age range. Among those patients over age 47, the most abused drugs were, in descending order of frequency, analgesics, alcohol, hypnosedatives, narcotics, and minor tranquilizers. No symptoms were reported among this group that are associated with hallucinogen abuse.

CONCLUSIONS

In contrast to public agencies, which stress the prevalence of drug problems among young, black, and male members of the population, this study of physicians' caseloads shows that such problems also exist among higher socioeconomic groups and the elderly. Medical school training to promote accurate diagnosis of drug abuse problems in private physicians' practices is recommended.

DRUG	Prescription drugs
SAMPLE SIZE	67
SAMPLE TYPE	Ambulatory, noninstitutionalized users
AGE	Mature adults; aged (range: 61-91; average: 70.5)
SEX	Both
ETHNICITY	White; other
GEOGRAPHICAL AREA	Fayette County, Kentucky
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Questionnaire
DATE(S) CONDUCTED	January to June 1979
NO. OF REFERENCES	10

PURPOSE

While fraught with methodological problems and inconsistencies in approach, most of the literature indicates that misuse of drugs by older people is a serious health problem of unknown dimensions, demanding further attention and research. In 1967, the elderly over 65 years old composed 10 percent of the U.S. population but accounted for 25 percent of all prescription drugs sold. Regional studies suggest that older people are more likely to be at risk from drug misuse than any other age group and that certain characteristics of aging (e.g., decreased vision and hearing) may contribute to the potential for drug misuse.

Appropriate and inappropriate drug use both result from interaction between the elderly person, the physician, and the pharmacologist. Patient noncompliance in using legal drugs appears to relate to such factors as age and household composition, total number of medications used, cost, doctor-patient miscommunication, and inadequate information to insure appropriate medication use. To facilitate a comprehensive investigation of drug misuse by older persons, the present study describes the characteristics of a sample of ambulatory, nonclinic older persons.

METHODOLOGY

A study sample of 67 drug users (those currently taking at least 1 prescription drug) was extracted from a random list of 150 names of registered voters in Fayette County, Kentucky, who were 60 years old or older. Hour-long interviews were conducted in subjects' residences between January and June 1979 by interdisciplinary teams composed of social work graduate students and Doctor of Pharmacy students. The 50-item structured interview schedule included a 10-item mental status questionnaire developed by Pfeiffer (1975). Drugs were classified according to the drug categories described by Solomon et al. (1978), and drug interactions were differentiated according to the criteria of Hansten (1979).

RESULTS

Subjects' ages ranged from 61 to 91 (average: 70.5). A total of 63 percent were female, and 62 percent were white. The mean level of formal education was 12.8 years; the median gross monthly income category was the \$378 to \$523 group. A total of 37 percent of the subjects lived alone; 48 percent were married; 34 percent, widowed; 10 percent, divorced; and 8 percent, single. Most subjects (86 percent) used little or no alcohol, 25 percent were infrequent or moderate users, and 6 percent used alcohol daily. A total of 70 percent felt that their health was better than that of other persons of their age; 24 percent considered it the same; and 6 percent, worse.

A total of 221 drugs were prescribed for 125 medical conditions in the 67 subjects. Twenty-eight of the subjects misused drugs in 36 instances; 21 subjects misused 1 drug each, 6 misused 2 drugs, and 1 misused 3 drugs. Misuse occurred in five of the eight drug categories; underuse accounted for 72 percent of the instances of misuse.

When the data on misusers were compared to data on nonmisusers, the number of dispensing pharmacies and the number of prescribing physicians were found to be positively related to drug misuse. Only use of two or more pharmacies and having medications prescribed by two or more physicians were significantly associated with drug misuse.

Receiving prescriptions from several physicians may lead to confusion about instructions for each drug. It is also possible that the use of multiple physicians or pharmacologists reflects the desire of the subjects to exercise their own powers of decisionmaking and their right to shop around. In either case, better coordination of patient counseling among providers and better explanations to patients of the need to take medication as prescribed are needed.

CONCLUSIONS

Findings indicate that of the factors examined only use of two or more pharmacies and prescription of medication by two or more physicians are significantly associated with drug misuse. While further research is necessary to expand upon the hypothesis suggested, it is clear that intervention strategies must be designed for practicing health care professionals as well as for older drug consumers.

Stephens, R.C.; Haney, C.A.; and Underwood, S. Psychoactive drug use and potential misuse among persons aged 55 years and older. Journal of Psychoactive Drugs, 13(2):185-193, 1981.

DRUG	Prescription psychoactive drugs
SAMPLE SIZE	1,101
SAMPLE TYPE	Noninstitutionalized persons
AGE	Mature adults; aged (55 and over)
SEX	Both
ETHNICITY	White; black; Mexican American (1 percent)
GEOGRAPHICAL AREA	Harris County, Texas
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	1979-1980
NO. OF REFERENCES	5

PURPOSE

Few data exist on the rates and patterns of use of psychoactive drugs by the elderly and on the extent of potential misuse of these drugs. This study used a sample of persons aged 55 and over in Harris County, Texas, to define and estimate the extent of certain types of possible psychoactive drug use. The psychoactive drugs studied included sedative-hypnotics, antipsychotics, antidepressants, antianxiety drugs, stimulants, and analgesics.

METHODOLOGY

A random sampling procedure was used to try to obtain a representative sample of noninstitutionalized persons aged 55 and over living in Harris County. Complete interviews were obtained from 1,101 persons. Data were collected from the middle of 1979 to early 1980 using two different interview instruments. The first was a telephone interview lasting about 45 minutes to an hour. Respondents were asked to grant a personal interview in their homes, following which they were paid \$5 for their cooperation.

Over 60 percent of the sample were female. Almost half were aged 55 through 64, 35 percent were aged 65 through 74, and 18 percent were 75 or older. All but 1 percent of the sample were white or black.

Many questions focused primarily on the respondent's use of drugs and the circumstances surrounding such use. The interviewers asked to see the bottles of all the prescription medication being used. Information was recorded from the container labels.

RESULTS

A total of 17.6 percent of the sample reported that they were currently using a psychoactive substance. Of these, 85.1 percent were currently taking one psychoactive drug, 11.3 percent were taking two psychoactive drugs, and 3.6 percent were taking three. Over twice as many females as males were current users of psychoactive drugs. Whites were using more than were blacks or Mexican Americans. Current use of psychoactive drugs also increased slightly with age, in that 17.1 percent of those aged 55 to 64 used drugs versus 19.3 percent of those aged 75 and over. Among these demographic variables, only the sex of the respondent was statistically significant.

Antianxiety drugs were the most commonly used psychoactive drugs. There was a bimodal distribution of length of use for most categories of psychoactive drugs. Respondents tended to have used the drugs either for less than 30 days or every day for the past 3 months.

About 7 percent of the sample reported that they did not always follow the prescription directions, usually taking less than prescribed. More than twice as many women as men violated prescription directions. However, users of psychoactive substances were much more likely than users of other drugs to fail to follow prescription directions. Only about 7 percent of the total sample could be classified as inappropriate overusers or underusers of psychoactive drugs. However, over half of the male users, over 40 percent of Anglo and black users, almost half of those between ages 65 and 74, and over 43 percent of those in the higher income group were inappropriate users. These figures are roughly similar to those of other studies.

CONCLUSIONS

Psychoactive drug use and misuse among the elderly do not appear to be major public health problems. However, the elderly person who has begun to use psychoactive drugs has a relatively good chance of becoming a misuser. Health professionals should make more efforts to educate their patients about these drugs and their proper use. Other issues needing study are the reasons for use of psychoactive drugs, possible social factors related to drug use among the elderly, and other forms of possible misuse, such as the use of two or more substances in combination.

Cheung, A. Drugs for the aging: Use and abuse. In: Reinhardt, A.M., and Quinn, M.D., eds. Current Practice in Gerontological Nursing. Vol. I. St. Louis, Mo.: Mosby, 1979. Pp. 64-73.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Users
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	19

PURPOSE

Because drugs have proved beneficial and sometimes life saving, they have come to be accepted as a remedy for every complaint and symptom regardless of diagnosis. Elderly individuals are especially prone to drug-induced complications, as they often have a number of chronic diseases requiring long-term therapy by a number of physicians. In addition, alterations in physiological states and psychosocial conditions, as well as a general lack of standards for prescribing and monitoring drug therapy in the geriatric population, contribute to serious drug use problems.

This study discusses problems of prescription drug use among the elderly, altered responses to drug use by the elderly, and guidelines for prescribing drugs.

SUMMARY

Drug use problems. Data from studies in the United States, Canada, and Australia show that 15 to 30 percent of hospitalized patients experience adverse drug reactions, that 3 to 5 percent of hospital admissions to medical services are a result of drug reactions, that hospital stays are doubled by drug reactions, that the majority of adverse drug reactions are preventable, and that national costs for drug-induced hospitalization amount to \$3 billion per year. Moreover,

age and chronic illness are predisposing factors in drug reactions. Patients in long-term care institutions regularly receive a large number of medications and are therefore likely to have adverse reactions. Thus, continuous monitoring of drug effects is essential.

Noncompliance with proper drug use instructions is as important as the problems of adverse drug reactions and interactions. There are two types of medication noncompliance: (1) medication errors in an institutional environment that are staff-initiated and can be easily corrected and (2) noncompliance in an outpatient setting, which is far more common and difficult to detect. Consequences of noncompliance are (1) worsening of the condition treated, (2) increased risk of drug reactions, and (3) escalated cost of care. Complete drug use records, patient education on proper drug use, and patient involvement in decisionmaking can alleviate noncompliance problems. However, additional complications can result from a person's use of nonprescription substances in the form of folk medicines, homeopathic remedies, and over-the-counter drugs.

Altered physiological responses to drugs in aging. The aging process causes changes in major organ functions that may alter the physiological responses to drug effects. The activities of the gastrointestinal tract, liver, and kidneys may be modified, thereby changing drug absorption, drug metabolism, and drug excretion. Total body water, lean body mass, and body fat may decrease with advancing age, affecting the amount of free drugs in the circulation and distribution of drugs in body tissues. Tissue sensitivity to drugs seems to change in older individuals, especially in tissue of the central nervous system. This can be attributed to altered response by the receptors and to changes in homeostasis mechanisms.

Clinical uses of drugs in the elderly. As most elderly persons have multiple pathological conditions or chronic illnesses that require drug treatment, clinical indications of drugs commonly used in treatment of the elderly should be known. A number of drugs, such as digitalis, are used for cardiovascular drug therapy. This group of drugs probably causes the greatest number of adverse reactions, as the difference between the therapeutic and toxic dose is small. Diuretics are important in the management of congestive heart failure and hypertension, but they may cause urinary retention, incontinence, electrolyte disturbances, acid-base imbalance, impaired glucose tolerance, and hyperuricemia. Antihypertensive agents such as thiazides are usually employed for management of hypertension, but incorrect lowering of blood pressure may precipitate cerebrovascular and coronary insufficiency. Furthermore, certain diuretics may cause drowsiness, depression, psychiatric disturbances, and even unconsciousness. Lethargy and drowsiness in the initial treatment and impotence or decreased libido in the long-term use of guanethidine and methyl dopa may account for some noncompliance by the elderly patient.

Sedative-hypnotics and major tranquilizers, among the most abused prescription drugs, are often used for the treatment of acute confusion states, insomnia, and mental disturbances associated with cerebral arteriosclerosis and senile psychosis in the aged patient. Such drugs may cause syncope, drowsiness, hypotension, and dependence. Parkinsonian rigidity and dyskinesia are common in phenothiazine therapy.

After using a long-acting preparation of insulin or an oral hypoglycemic agent, the elderly diabetic patient is prone to develop a hypoglycemic reaction, which may result in an acute brain syndrome and other mental changes. In the elderly especially, the hypoglycemic reaction may result because the patient fails to eat properly. In addition, a variety of analgesic preparations are used by the elderly to control pain, arthralgia, and myalgia, but all cause gastrointestinal distress and hemorrhage. While acetaminophen and other preparations are not irritating to the gastrointestinal tract, they do not have anti-inflammatory action and may, after long-term use, further aggravate renal abnormality. Finally, geriatric patients may be given drugs with anticholinergic properties (e.g., parasympatholytic preparations, major tranquilizers, tricyclic antidepressants, antiparkinsonian agents, and antihistamines). The most serious effects from such drugs are acute brain syndrome, hypotension, tachycardia, urinary retention, and constipation.

Guidelines for drug prescribing and monitoring. Guidelines to assure proper drug use include establishment of a complete up-to-date drug profile for each elderly patient, development of a pathophysiological profile for each patient, and acquisition of knowledge of geriatric pharmacology and clinical pharmacokinetics by providers. Also important are development of drug monitoring plans and criteria; outlines of social, psychological, and economic profiles for patients; provision of patient education and counseling; documentation and communication on drug responses; and establishment of standards for drug utilization review.

CONCLUSIONS

Because of physiological and psychological changes in the elderly, drug use should be carefully monitored at all times. Only the combined efforts of health care providers and the patient can improve the effectiveness of drug therapy through communication, patient counseling, and education.

Eisdorfer, C., and Basen, M.M. Drug misuse by the elderly. In: DuPont, R.L.; Goldstein, A.; and O'Donnell, J.; eds. Handbook on Drug Abuse. Rockville, Md.: National Institute on Drug Abuse, 1979. Pp. 271-276.

DRUG	Multidrug
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Misusers
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	37

PURPOSE

The growth in number and proportion of the aged population is a phenomenon that goes back 100 years and that will probably continue into the 21st century as longevity increases in the less developed countries. Social gerontologists have now begun to distinguish the "young old" (68 to 75 years old) from the "old old" (76 years old and older). This dichotomy has important implications for social policy issues. In fact, these demographic developments in general will require that considerably more attention be paid to social and health policies affecting the aged.

Of particular concern is the fact that the aged are a population at risk. Aging brings with it a greater risk for health problems, disability, and institutional care. Physical and psychological changes of the aged are frequently complicated by problems of the elderly. For that reason, the present study seeks to provide an overview of the literature on drug use by the elderly and its implications for treatment.

SUMMARY

Recent studies of drug addiction among the elderly suggest that older addicts switch their abuse patterns to licit drugs and do not "mature out" of drug use with advancing age as earlier

researchers have suggested. Because the major source for identifying older addicts is methadone maintenance programs, it is difficult to tell how many elderly drug users actually exist. Many patients on methadone also use depressants (such as barbiturates), which pose particular problems, including death, for the elderly. Nevertheless, barbiturates are among the drugs most frequently used by the elderly.

Both the vast amount of drugs the elderly use and their taking of various drugs simultaneously contribute significantly to the chances of drug misuse. Drug misuse is reportedly the most important cause of acute brain syndrome among some groups of elderly patients. A number of studies also show that alcohol-medication interaction is a serious potential problem among the elderly. For example, Guttman found that 62 percent of his 447-person sample used prescription drugs daily and that 55 percent of the sample used over-the-counter medications. More than half the subjects used prescription drugs combined with over-the-counter drugs or alcohol. Males tended to use more alcohol than drugs, and females, more drugs than alcohol. In the same study, health, knowledge of resources, and physical disabilities were identified as predictors of prescription drug use, and age, poor health, and less satisfaction with life were indicators of over-the-counter medication use.

Misuse of prescription drugs is correlated with the number of drugs used and the nature of the drugs. Commonly misused drugs are primarily for symptom relief rather than cure and affect sleep, appetite, and mood. Patient noncompliance, especially underuse and self-adjustment, is common (about 50 percent). Persons confined in nursing homes are particularly vulnerable to drug misuse, as they often receive psychoactive drugs. Unfortunately, major studies of drug use related to patient need are still lacking.

With aging, the human body undergoes significant alterations in physiology that affect drug use. The pharmacokinetics of drug action involve absorption, transport, localization of the agent in body tissue, metabolism and excretion of drugs, and the sensitivity of the target organ or receptor sites to the drugs. The aged show great variation in clinical response and side effects to drugs. While absorption may drop in many instances, the sensitivity of the target organ to the drug may increase. The shift in the aging body to a higher content of fat, as well as the loss in number of cells of certain target organs will obviously also affect drug action. The loss of neurons in the central nervous system results in sensitivity changes. On the whole, however, little is known about the actual mechanism of drug metabolism and pharmacokinetics of the aged.

CONCLUSIONS

The available literature verifies that abuse of licit and illicit drugs among the elderly is a problem of serious dimensions. New knowledge must be brought to bear on the array of issues affecting drug use ranging from the somatic changes accompanying age and their influence on drug metabolism and efficacy to the effective and safe ranges of drug dosage, as well as the various physiological influences on medication use. Further research is needed since with increasing proportions of aged persons, greater longevity among the aged, and the given current patterns of behavior, drug use and potential for misuse will continue to develop as a national problem.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	76

PURPOSE

In the elderly, particularly the frail old or old-old, sociogenic factors combine with the effects of biologic and pathologic aging to produce a complex clinical picture. The elderly also face a high level of psychosocial and physical stress. In addition, the absence or intensification of many classical signs and symptoms may make diagnosis difficult. The assessment of the health status of the elderly must be based on the understanding that a combination of factors, including living problems, general health factors, diseases of adaptation, and a decrease in the efficiency of several organ systems, determine that status.

This paper discusses the health care system in relation to the elderly and areas that should be considered before and after prescribing drugs to elderly patients.

SUMMARY

The treatment and care of the elderly requires a much broader perspective than the traditional disease-oriented approach of medicine. The current system's primary focus on illness and therapeutic care overlooks underlying social and other problems among the elderly. The system needs to emphasize health promotion and disease prevention, provide community health and medical

services, and provide more day centers and other alternatives to institutionalization. These changes are especially needed in light of the fact that the proportion of elderly persons in the population is growing, with the proportion of persons aged 75 and older increasing even more sharply. Moreover, the most serious health problems are encountered among the old-old and the frail elderly.

Before prescribing drugs for an elderly person, the physician must carefully consider the patient's ability to meet the economic demands of medical care. Only 60 percent of the physician's cost and only 13 percent of the drug cost for the elderly are paid from public funds. Many elderly people may not obtain prescribed drugs due to the costs involved.

Physicians should also be aware of patient characteristics and sex differences in reactions to certain medications. For example, men have more coronary heart disease than women, while women are more likely than men to suffer adverse drug reactions. Further, males generally require less psychiatric medication and have more favorable outcomes than females. Thus, elderly women receiving drugs appear to be more at risk than men.

Another consideration in prescribing drugs is the need for the active cooperation of patient and provider to ensure the favorable outcome of therapy. However, the nursing home environment promotes passivity, and ambulatory elderly patients are subject to general prejudice against the elderly. In making efforts to surmount these problems, it should be remembered that aggressive treatment for the elderly can lead to more complications and side effects than in the young.

Lack of a comprehensive body of knowledge on drugs and aging prevents physicians from having reliable prescription guidelines. The variable rates of aging in different individuals and the conflicting definitions of the term "elderly" all complicate the determination of drug dosages. Determination of the correct dose should be based on a detailed diagnostic workup, which itself can be complicated. In choosing the correct dose, the drug's potential hazards to the patient should be carefully assessed. Physicians should also keep in mind that drug effects depend on the free drug level and end-organ sensitivity, both of which are altered by the aging process. The unpredictability of response to a drug increases sharply with increasing age. The effects of the patient's disease state on bodily functions must also be considered. In some cases, such as that of high blood pressure, it is unclear whether or not an elderly patient should be treated.

After a therapeutic plan has been carefully chosen for an elderly patient, many different factors can interfere with the plan's successful implementation and continuation. For example, impaired vision can prevent an elderly person from reading small prescription labels. Hearing loss may also cause difficulties with the treatment plan. Altered nutritional status due to inadequate calories or nutrients can occur and may be caused by disease states or drugs being taken. Other problems may include the prescribing of too many drugs and the elderly person's increased sensitivity to drug effects.

CONCLUSIONS

Before giving an elderly patient a prescription, the physician should know whether the drug is effective in elderly patients, whether a simple dosage schedule is possible, whether side effects are frequent and well tolerated, and whether the drug is reasonably priced. It is then important to secure cooperation from the patient so that the treatment plan will be followed. Compliance can be encouraged by avoiding the prescribing of multiple medications, by identifying any nonprescription drugs the patient is also taking, and by prescribing the lowest dose in as infrequent a dosage schedule as possible. Factors that may lead to misuse of the drug should be assessed and, when necessary, discussed with the patient.

Warren, F. Self-medication problems among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 105-125.

DRUG	Prescription and nonprescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	30

PURPOSE

Self-medication refers to the use of over-the-counter or nonprescription medications to treat problems that a person does not deem serious enough to require the attention of a physician. Similarly, self-administration refers to the taking of prescribed medications as part of a total plan of treatment for some condition. This paper examines these two concepts from the standpoint of what the patient can and cannot do to influence the drug therapy. Common problems related to both self-medication and self-administration of drugs are discussed, with emphasis on issues related to the elderly.

SUMMARY

Self-medication. Reasons for self-medication include the inability to see a physician, lack of money to pay the physician for writing a prescription, the inconvenience of waiting to be seen by a doctor, and the tendency to treat oneself for minor conditions that are likely to disappear if endured for a few days. Two of the problems associated with self-medication are the accuracy of the diagnosis and the possibility that the patient will not seek needed medical treatment.

Patients usually choose drugs on the basis of their past experiences, recommendations of friends, media advertising, price, or the advice of a pharmacist. The accurate labeling of over-the-counter drugs and the convenience of obtaining them are among their advantages. However, self-medication may also occur with prescription medications obtained from friends or from reuse of a previously prescribed drug. The potential inappropriateness of the drug and the possibility that it has deteriorated with age or improper storage conditions are two major disadvantages of such drug use. A further problem is the possibility of a drug interaction, since patients are unlikely to inform their physicians that they have been using prescriptions drugs improperly.

Self-administration. Several factors influence the patient's level of compliance with drug treatment regimens prescribed by physicians. Patients may not have prescriptions filled because they disapprove of the drug prescribed, the cost of the prescription, or the difficulty of locating a drug, particularly a new one.

Even when the prescription is filled, several problems can prevent the patient from taking the medication. Containers may be difficult to open or specialized devices may make it difficult to administer the drug. The patient may not be able to read the instructions because of vision problems or to understand the instructions because of lack of education. Patients may also interpret the frequency of dosage differently from the frequency intended by the physician.

Factors that determine patient compliance with treatment regimens include understanding of the disease state, understanding of the reason for treatment, understanding of the nature of the treatment, and awareness of the likely outcome of the condition when the treatment program is faithfully followed. Otherwise, patients may stop using the drug when the symptoms subside, may avoid using the drug in fear of becoming habituated to the medication, or may discontinue use when unexpected side effects are experienced. When chronic medical conditions are involved, it is especially important that the patient be actively involved in the treatment program.

Two ways to reduce the costs of prescription drugs are to prescribe a drug by its generic name or to select the least expensive drug from a class of therapeutic agents. The decision regarding this choice belongs almost exclusively to the physician. However, patients can reduce costs by making bulk purchases of chronic medications and using convenient pharmacies to reduce travel costs. Use of pharmacies that maintain records useful for third-party payment programs can also save the patient time and effort.

CONCLUSIONS

Despite potential problems, the use of safe, effective, over-the-counter drug products for the treatment of certain conditions is probably essential to prevent an overload and collapse of the medical care delivery system. The challenge is that patients must be properly informed and educated regarding the medications they use in their own self-treatment programs. In the case of prescribed drugs, many difficulties can occur in attempting to follow the prescribed treatment regimen and in dealing with the costs of drug therapy. Since elderly patients often take large amounts of drugs for long periods of time, the proper use of these medications can be crucial to the maintenance of good health and well-being.

Inciardi, J.A.; McBride, D.C.; Russe, B.R.; and Wells, K.S. Acute drug reactions among the aged: A research note. Addictive Diseases: an International Journal, 3(3):383-388, 1978.

DRUG	Multidrug
SAMPLE SIZE	9,975
SAMPLE TYPE	Persons admitted to hospital emergency room for drug reactions
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	White; black; Spanish
GEOGRAPHICAL AREA	Miami, Florida
METHODOLOGY	Comparative study; secondary analysis
DATA COLLECTION INSTRUMENT	Emergency room records
DATE(S) CONDUCTED	January 1972-June 1976
NO. OF REFERENCES	13

PURPOSE

Several authors have argued that the social disengagement on the part of the elderly can result in losses of control over behavior as expressed in the form of alcoholism, depression, mental illness, suicide, crime, or drug use. The literature indicates that the problems associated with drug use among the elderly result from the misuse of drugs through self-medication, usually because of misunderstanding of the medications' purposes or dosages. Other studies have shown that elderly persons appear to be high consumers of some psychoactive medications, particularly sedatives and tranquilizers. These data suggest that some elderly persons may be at high risk of harm from prescription psychotropic drug use.

This study focused on one aspect of the potential problems associated with drug use by the elderly: acute or adverse reactions. Data on emergency room admissions in Miami were examined to determine elderly persons' experiences of acute drug reactions.

METHODOLOGY

Data were drawn from the National Center for the Study of Acute Drug Reactions, a federally funded project that documented all cases of acute or adverse drug reactions coming to the

attention of selected emergency rooms in the cities of New York, Miami, Denver, and Houston. The data in the present study relate to the Miami-based portion of the project, where the reporting was designed to be the most comprehensive.

Patient emergency room records were drawn for the period January 1, 1972, through June 30, 1976, for Miami's Jackson Memorial Hospital. The hospital is the only municipal hospital serving Dade County's population of about 1.5 million persons and has the fourth largest emergency room in the Nation. Preliminary tabulations indicated that during the 4.5-year study period, a total of 9,975 cases involved a primary complaint concerning drugs other than alcohol. The primary and secondary drugs involved were recorded for all the patients treated for acute drug reactions. Over half of the patients were female and white.

RESULTS

Only 2.6 percent of the cases involved persons aged 60 or over, as contrasted with 11.5 percent in the group aged 40 to 59 and 85.9 percent in the group under age 40. The drugs that precipitated an acute reaction varied by age cohort. While all three groups had many reactions to sedatives and tranquilizers, the elderly seemed to have reactions to a wider variety of legal drugs. The elderly had higher proportions of reactions to over-the-counter drugs such as analgesics, sedatives, stimulants, and laxatives. The use of illicit drugs like heroin and cocaine was not a problem among the elderly. One-fifth of all acute reactions involved heroin, cocaine, hallucinogens, and marijuana/hashish, but none of the acute reactions appeared among the elderly. In addition, only 1 of the 303 acute reactions involving methadone occurred in a person age 60 or older.

About one-fifth of the acute drug reactions in each age group involved a secondary drug as well as a primary drug. In all three age groups, accidental overdose or attempted suicide accounted for the vast majority of the acute drug reactions. However, panic reactions or addiction problems were less often a problem among the elderly, while allergic reactions were most common in this group.

CONCLUSIONS

Acute drug reactions do not appear to be a critical problem among the elderly. This conclusion is supported by data from the Drug Abuse Warning Network, a nationwide program established by the Drug Enforcement Administration and cosponsored by the National Institute on Drug Abuse to monitor drug abuse patterns throughout the United States.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Users
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	76

PURPOSE

The number of elderly is rapidly increasing in the United States, and by 1985, 50 percent of the population will be over 50 years of age. More than in any other age group, socioeconomic and physiological factors among older persons can be the cause of or influence the outcome of a particular disease state. However, the current knowledge of these factors may be inapplicable to the next generation of the elderly both because of enhanced health status as a consequence of improved dietary habits and better education and because of increased drug sensitivities resulting from higher drug use levels and negative effects of early retirement.

The present study outlines the most common changes caused by aging and the implications of these changes for drug use by the elderly.

SUMMARY

Sociogenic aging. Most mental and attitudinal changes seen in old people are not biological effects of aging but are the results of role playing, with the individual conforming to society's expectation that the elderly will be physically and mentally infirm. Furthermore, the elderly frequently are deprived of the economic means to obtain aids, such as glasses, hearing aids,

and dentures, that enhance sensory input. Rapid changes in lifestyle, such as loss of spouse, job, or friends; deteriorating health; or even an unavailability of ethnic food, cause great stress in the lives of the elderly. The importance of these stresses is underscored when one realizes that they are occurring at a time of diminished ability to cope and when society is least supportive.

Biological aging. Biological, or primary, aging is a rate process that varies from individual to individual. Primary aging may be exaggerated by secondary aging, which encompasses disabilities resulting from recurring injuries, trauma, stress, and loss. While age decrement per se does not lead to disease, elderly people no longer respond efficiently to stress, including the stress to the body caused by drugs. In terms of disease and drug therapy, central attention must be focused on changes in the central nervous system, the heart, kidneys, and the liver of the elderly.

With advancing age, integration among muscles, glands, neurons, and blood becomes less efficient. Cerebral blood flow is reduced and the rate of learning may be slowed, although intellectual ability does not appear to decrease. The aging heart is susceptible to a variety of pathological conditions and processes. By age 65, cardiac output has decreased by 40 percent, contributing to the danger of hypotension and making distribution patterns as well as therapeutic effects of drugs unpredictable. The liver is the organ least susceptible to aging. Primary aging may bring about decreased hepatic flow as well as reduced enzyme induction. Changes of significance for drug treatment are primary changes such as a reduced level of protein albumin and secondary changes as a result of hepatitis or cirrhosis. Functional changes in the kidneys even of healthy older individuals are the rule. The rate of formation of glomerular filtrate, effective renal plasma flow, and tubular excretory capacity all decrease more than 40 percent between the ages of 20 and 90 years. Few individuals who live past 60 remain free from renal or vascular pathology.

Incidence of disease and drug use among the elderly. Statistics show that approximately 80 percent of the elderly, in comparison with 40 percent of those younger than age 65, have one or more chronic diseases. The incidence of disease is reflected in the high levels of drug use by the elderly. In the early part of the 1970s, the 9 percent of the population over 65 years old used 22 percent of all prescriptions. The number of drugs prescribed for each old person in an institution is estimated at between 5 and 12. Moreover, the cost to the elderly for health care services is high and continues to rise disproportionately. Health care costs are reportedly three times higher for senior citizens than for younger persons, with Medicare covering only 38 percent of the costs.

Implications of primary and secondary aging. Diagnosis of disease in the elderly is difficult because of altered pain perception in persons in this age group and because decrement of brain function can induce confusion and disorientation. Diagnosis is further complicated by drug-induced depressions and age-dependent changes in laboratory tests.

The aging body can present a crucial variable in the use of therapeutic agents. Absorption, distribution, metabolism, and excretion may be impaired to varying degrees. Although the effects of aging on drug absorption are not great, absorption may be reduced because of drops in total gastric acidity, slowing of peristaltic activity, arterial insufficiency, reduction in the size of the absorbing surface, and impairment of enzyme systems. Distribution of certain drugs may be limited by reduced plasma albumin concentrations, causing a lower binding capacity of some drugs. An increase in the permeability of the blood-brain barrier may also alter drug effects. The chief site for the metabolism of drugs is the lipid membranes surrounding the liver microsomes. Any decrease in liver microsomes will impair drug metabolism. Finally, drug toxicity is likely to occur when clearance through excretion does not occur and a drug accumulates in the body.

Adverse drug reactions. The incidence of adverse drug reactions in the elderly doubles between the ages of 40 and 60. Age-specific and sex differentiation in drug response may occur in some instances (e.g., 50 percent of women over age 60 suffer from bleeding following heparin administration). Hospital admissions for drug-induced illnesses are 1.5 times higher for persons over age 60 than for younger persons. The homeostatic mechanism that controls drug effects to some degree in younger persons may be lost with age, causing an exaggerated drug response or reduced sensitivity to certain drugs. Furthermore, drug treatment of one condition can adversely affect an already existing condition.

Selection of proper dose. In the elderly, more so than in the younger adult patient, dose must be regulated with regard to diagnosis, sex, height, weight, age, general physical condition, mental outlook, environmental situation, and other medications in use. Few specific guidelines are available to the clinician selecting proper drug doses, but in general the elderly may need only as little as one-third to one-half the usual adult dose, especially if the patient is suffering from renal insufficiency and the danger of drug accumulation and toxicity exists.

Individuals who prescribe and dispense drugs have the responsibility for explaining the proposed therapy to geriatric patients in comprehensible terms and for providing prescriptions with legible labels in color-coded vials.

CONCLUSIONS

Because of changes in absorption, distribution, metabolism, and excretion of drugs brought about by aging, great care must be taken in selecting proper drug dosages and in advising patients on the proper use of drugs. Precise, easy to read instructions should be given to the elderly patient. Repeated checks should be made to insure accurate drug use and to avoid untoward drug reactions.

Lofholm, P. Self-medication by the elderly. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 8-28.

DRUG	Prescription drugs; over-the-counter drugs
SAMPLE SIZE	Not specified
SAMPLE TYPE	Self-medicators
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Theoretical/critical review; literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	3

PURPOSE

Little has been written on self-medication by the elderly, perhaps because there is not much good evidence on the subject. It is important that both the values and the limitations of drug therapy be understood. For that reason, the present study reviews medical conditions typical of persons over age 65 and medications commonly prescribed for this group. Special attention is focused on medication administered by the elderly who live at home and care for themselves.

SUMMARY

The most common medical conditions among the elderly are arthritis, hearing loss, heart conditions, high blood pressure, visual handicaps, digestive diseases, chronic sinusitis, mental and nervous disorders, genitourinary tract problems, and circulatory problems. In general, drugs may be helpful for arthritis, heart conditions, high blood pressure, digestive disorders, and nervous complaints but not for hearing loss or visual handicaps, although these conditions may interfere with patients' ability to read labels or may be aggravated by certain drugs. All drug use by the elderly should be carefully monitored.

The elderly are most often prescribed drugs for heart conditions. Doses of digitalis, the drug usually prescribed, must be kept low, and sodium, potassium, and other electrolyte levels should be monitored to prevent toxicity. Drugs for high blood pressure and for arthritis are the next most frequently prescribed. Both high blood pressure remedies and the indocin sometimes prescribed for arthritis have potential side effects. Following these in frequency of prescription are drugs for mental and nervous conditions (phenothiazines, antidepressants, and central nervous system drugs) and for gastrointestinal diseases. Constipation becomes a particular problem in nursing homes where patients are bombarded with a variety of binding drugs for control of other symptoms. Other conditions in order of drug-treatment prevalence are genitourinary tract diseases, diabetes, coughs and flu, circulatory problems, and chronic skin conditions.

The major therapeutic classes of drugs prescribed for the elderly are heart drugs (38.9 million prescriptions), tranquilizers (16.9 million prescriptions), diuretics (16.1 million prescriptions), and sedatives (15.1 million prescriptions).

The drugs most commonly used by the elderly are tolbutamide (Orinase), for maturity-onset diabetes; chlorthalidone hydrochloride (Diuril); diazepam (Valium); propoxyphene hydrochloride (Darvon); chlorothiazide (Diuril) and hydrochlorothiazide (Hydrodiuril); digoxin (Lanoxin); and glutethimide (Doriden). Most of these drugs present dangers such as addiction (chlorthalidone hydrochloride), hypoglycemia (tolbutamide), accumulation (diazepam), and toxicity (digoxin and glutethimide).

A number of problems in medication of the elderly must be dealt with. Some patients may take medications not prescribed by their doctors. Patients' forgetfulness about taking medications can be remedied by using long-acting drugs or supplying medication calendars. Improper timing and sequencing of doses is likely to occur if patients cannot take drugs around mealtimes. A particularly serious problem is the high incidence of inaccurate knowledge or even complete ignorance on the part of patients regarding the rationale for use of particular drugs. Likelihood of errors in the administration of drugs is correlated to age over 75, widowed or divorced marital status, low educational levels, presence of multiple diseases, low coping ability, and high number of prescriptions to be taken simultaneously.

As to patterns of drug use among the elderly, women use more drugs than men, and the elderly use more hypnotic drugs than younger groups. The elderly are less likely to use psychotropic drugs than the rest of the population, and when they do use them, they obtain them from medical sources.

The risks of medication use include adverse reactions. The rate of adverse reactions increases with the administration of an increasing number of drugs. As the number of drugs administered increases, the percentage of patients with reactions, mortality rates, and average hospital stays increases. Furthermore, renal function, a prior history of drug reactions, and infection correlate with drug reactions, while liver function, atopic disease, and gastrointestinal disease do not.

Even over-the-counter drugs may produce side effects and may be used for no good reason. Aspirin can cause ringing of the ears or gastric ulcers if not taken with enough water. Daily purging with laxatives may be an unnecessary habit better replaced with exercise. Vitamin and mineral combinations are really only needed when diet is inadequate, and they may cause constipation.

CONCLUSIONS

The fact that the elderly ingest 25 percent of all drugs produced reflects the high incidence of chronic disease in this age group. Drugs used to control the diseases most common among the aging pose an inherent danger of side effects and even overdoses if dosages and types of drugs used are not carefully considered. Errors in administration of drugs are likely to occur in older patients who have become forgetful. Adverse drug reactions are most likely to be correlated with the number of drugs prescribed to any given elderly patient. Most of the therapy for the elderly is directed toward maintaining a better quality of life by pharmacologically improving organ functions or suppressing degenerative changes.

Pfeiffer, E. Use of drugs which influence behavior in the elderly: Promises, pitfalls, and perspectives. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 44-66.

DRUG	Prescription psychoactive drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Patients
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	None

PURPOSE

Medical textbooks in the areas of psychiatry, internal medicine, and pharmacology do not mention the modifications that are needed in prescribing medications for elderly persons. In addition, health professionals receive little or no formal training on the specific uses of psychotropic drugs in mentally disturbed older persons. This paper discusses the use of medications that influence the behavior of psychiatrically disturbed elderly persons. The potential benefits and disadvantages of such drugs and the implications for their use are examined.

SUMMARY

Negative stereotypes of the elderly have resulted in large part from early research, which focused on institutionalized elderly. A widely held view is that the elderly do not respond to treatment. However, the elderly emotionally disturbed person is as likely, or possibly more likely, as is anyone in any other age group to respond positively to appropriate psychiatric intervention, with the possible exception of the temporarily disturbed adolescent.

The most common psychiatric syndrome in old age is depression, which is a normal response to the losses experienced by elderly persons. These losses can be minimized through new

relationships or symbolic new relationships. Drug therapy may have a major or minor role to play in the therapy. In severe depressions, drugs are extremely useful.

Hypochondriasis, an anxious preoccupation with bodily function, is another common psychiatric disorder, which is particularly common as age progresses, especially among women. Physicians should respect the patients' reasons for choosing somatic rather than emotional expressions for their complaints and should respond to the patients' messages. Placebo medication may be helpful in dealing with hypochondriasis; the ingredients in any placebo should be truly inactive.

Paranoid reactions are also quite common in old age. The major tranquilizers, given in low dosages, are useful for treatment of paranoia. Transient reactions to particular situations, such as relocation, may also be handled using minor tranquilizers, hypnotics, or sedatives. Changed sleep patterns that accompany the aging process do not necessarily indicate psychopathology, and thus nighttime sedation is unnecessary. Organic brain syndromes constitute about half of the psychiatric disorders in the elderly. The main causes of acute brain syndrome or delirium are metabolic disorders and/or doctor-induced drug delirium or metabolic disorders. In the case of drug intoxication, stopping the drug and waiting is the effective solution.

Drug therapy can either perpetuate the underlying problem or cause side effects. Sleeping medications will only perpetuate the problem of chronic brain syndrome, although moderate dosages of major tranquilizers may be appropriate. Avoiding sleep medications will produce more alert patients and more work for the nursing staff, but more interaction among patients is desirable.

A common side effect of antidepressant drugs is delirium, with or without psychosis. Other reactions of major tranquilizers are drowsiness, hypotension, and parkinsonlike syndromes. Minor tranquilizers and sedatives can produce delirium, disturbances of equilibrium, and induction of physical and psychological dependence. Habituation, psychological and physiological dependence, and the potential for withdrawal reactions are all possible problems associated with hypnotics. Amphetamines can produce irrational behavior, paranoid reactions, violent behavior, and inattention to usual needs. Moreover, placebo medication can produce complaints of side reactions, even though the placebos are obviously not culpable. The side effects of procaine hydrochloride (Gerovital H3), which has been used in Rumania to treat the elderly for about 20 years, are currently unknown as the drug is undergoing controlled clinical trials in the United States as a possible antidepressant agent. It is approved for experimental but not clinical use in the United States.

CONCLUSIONS

The search for new drugs to improve the behavior of elderly patients should continue. Nevertheless, extreme caution should be exercised in the administration of drugs to the elderly, because elderly persons have delicately balanced systems easily upset by many of the drugs that are beneficial to younger patients.

DRUG	Prescription drugs
SAMPLE SIZE	87
SAMPLE TYPE	Residents of a home for seniors
AGE	Mature adults; aged (range: 63-94)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Sotkamo, Finland
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	Spring 1976
NO. OF REFERENCES	34

PURPOSE

According to various reports, from as little as 5 percent up to as much as 91 percent of all out-patients do not follow their physician's instructions for taking prescribed medicines. Almost all reports find that underuse is more common than overuse. Such errors in compliance are related to the number of different drugs prescribed, the number of times the drugs are to be taken each day, and the complexity of therapy. Most studies attribute lack of compliance to unsatisfactory or inadequate information about the use of medication. Although no clear picture of the noncompliant patient exists, evidence suggests that the elderly, who consume more medication than the average person and who are undergoing the changes of aging, are at particular risk. The present study examines general drug use and prescription compliance, with special emphasis on the instructions given in prescriptions.

METHODOLOGY

The sample consisted of 87 people aged 63 to 94 years (56 females and 31 males) residing in the community home for senior citizens in the small town of Sotkamo, Finland. About 50 percent of the subjects had less than a primary school education and only 3.5 percent had more than primary school. In 95 percent of the cases, the subjects belonged to the lowest professional groups.

Interviews were conducted with each subject in the spring of 1976 over a 3-day period to determine what prescribed and over-the-counter drugs had been taken during both the last 2 days and the last 2 weeks, the dose used, and the subject's knowledge about the reason for taking each drug. The prescriptions were examined to see if they contained adequate instructions.

RESULTS

About 85 percent of the subjects had used some drug during the last 2 days and 91 percent within the last 2 weeks. About 20 percent of the men and 10 percent of the women were not receiving prescription drugs. Only 13 percent of the men and 28.5 percent of the women were without over-the-counter medicines. In all, 283 prescriptions were or should have been in use. An average of 6.5 drugs for men and 5.7 for women were used daily.

Of the patients interviewed, 40 percent had 4 or more different prescribed drugs, 6 percent had 8 different drugs, and 1 male subject had 12 prescribed drugs that he supplemented with 7 over-the-counter drugs. More than 50 percent of the subjects had used some over-the-counter drug during the previous 2 weeks. A total of 15 percent of the subjects reported use daily, 21 percent several times weekly, 33 percent several times monthly, 20 percent less frequently, and 8 percent not at all without prescription.

Of the 74 patients receiving prescribed drugs, 38 had made in some manner at least 1 error in compliance. There were 26 errors for the 24 men and 45 errors for the 50 women. Patients taking the largest number of medicines made the most errors. In most cases, errors involved underuse rather than overuse. The largest group of compounds underused was chemotherapeutics (46 percent), followed by diuretics (33 percent) prescribed with digoxin or digoxin and potassium, antidiabetics (36 percent), antihypertensives (27 percent), and digoxin (16 percent). In contrast, psychopharmaceuticals and analgesics were generally taken according to orders. In 23 cases of failure of compliance, the instructions for the patients were inadequate.

A total of 8 percent of the patients experienced side effects of therapy resulting from or leading to overdose or underdose. Clear signs of digoxin overdose (e.g., loss of appetite, nausea) were found in four patients. Three out of five patients receiving methyl-dopa complained of dry mouth and gastrointestinal disturbances, leading to underuse.

CONCLUSIONS

The degree of medication of elderly people in rural Sotkamo does not differ significantly from that observed in the city of Helsinki, where the use of prescribed drugs was 3.1 medicines per elderly patient per week, or from that indicated by other researchers. The patient compliance to prescriptions found here is slightly better than that reported in some previous studies. However, elderly patients in Helsinki appeared to follow doctors' orders given for proper drugs, such as antibiotics, diuretics, digoxin, and antidiabetics, more closely than observed here. Conversely, patients in this study followed orders much better for symptomatic drugs (i.e., analgesics, angina pectoris drugs, expectorants, and spasmolytics), with which noncompliance is not as serious for the patient.

The reason for a high number of the failures to comply with doctors' instructions in this study seems to be more a case of ignorance than of deliberate omission. Some cases of failure to comply could be explained by the appearance of side effects. Overall, it can be concluded that inadequate prescription directions may be related to failures of therapy. Even if the label provides routine information to the patient, supplementary labels and/or separate information cards may further improve the situation. Another solution could be the adoption for use by patients of a calendar package designed to clearly separate which drugs and at which dose drugs should be taken at specific intervals during the day and week.

The elimination of these errors in such a closed community as Sotkamo would be eased with cooperation between the members of the health center and the pharmacy. The connection between these two centers in Sotkamo was rather limited and formal.

DRUG	Prescription drugs
SAMPLE SIZE	225
SAMPLE TYPE	Patients discharged from the hospital
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Halifax, Nova Scotia, Canada
METHODOLOGY	Multivariate analysis; econometric study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	23

PURPOSE

Rising drug costs have created serious financial difficulties for every country whose national health program includes drug benefits. Seeking to overcome these difficulties, some countries have restricted access to free prescriptions. Many patients are then forced to discontinue the treatment recommended by their physicians. The present study explores the relationship between patients' compliance with physicians' instructions and their fiscal ability to purchase drugs, as well as the effects of the amount of drugs prescribed and the frequency of dosage on compliance with physicians' instructions.

METHODOLOGY

The study group consisted of 225 male and female patients who were discharged consecutively over a 3-month period from the inpatient medical services of Victoria General Hospital in Halifax, Nova Scotia, Canada. The majority of the patients were married. The average age of the men was 59.2 years and of the women, 58.1 years. Over half the patients belonged to a low socio-economic group earning between \$1,000 and \$6,999 a year. The average level of education was 8.4 years.

Study data derived from interviews with patients 6 months after their discharge from the hospital and from interviews with their physicians. Costs for medications were estimated from a list of drugs prescribed for each patient. The chi-square test of significance was used in comparing the patients who had complied with all the physicians' instructions and those who had not. Discriminant function analysis (i.e., multivariate analysis for describing group differences) was also performed.

RESULTS

Of the 225 patients, 91 (40.4 percent) had not complied with 1 or more of the physician orders. The proportion of women not complying was slightly larger than the proportion of men, but the difference was not statistically significant. The youngest and oldest groups had the highest proportion of noncompliers (50 percent for the 30- to 39-year-olds and 62.5 percent in the group aged 80 years old and older). The single and the widowed had the highest proportions of noncompliers (37.5 and 34.4 percent, respectively). Patients with 0 to 6 years of education complied less than those with the highest level of education.

The most frequent reasons for noncompliance were cost of drugs (31 patients), patient's attitude (16 patients), and misunderstanding of physician's advice (15 patients). A significant component of noncompliance was the lack of adequate communication for understanding among hospital physicians, community health agencies, and patients. A heavy prescription load and high dosages, particularly when combined with the high cost of drugs, had a markedly negative effect on compliance with physician's orders. The added burden imposed by drug costs brought about the most pronounced effect; the average monthly cost of drugs prescribed for noncomplying patients was almost three times higher than for patients who did comply.

The patient-physician relationship may also affect compliance. The physician may fail to perceive a patient's level of understanding and may consequently not supply adequate information. Dosage schedules requiring frequent drug administration of various drugs make it difficult for patients to recall which drugs to take when.

The drug cost factor is particularly significant for the minority of respondents who are ineligible for welfare benefits. Inability to pay for drugs prevents many patients from receiving the medical treatment prescribed for them. Especially affected are the elderly who are chronically ill and patients in the lower socioeconomic group. These two groups also constitute the segment of the population using the most health services and for whom the most drugs are prescribed.

CONCLUSIONS

Lack of compliance is related to advanced age, single or widowed marital status, a low educational level, a low income, and severity of the disease under treatment. It is also associated with high dosages of medicine and multiple prescriptions.

Cost barriers constitute a significant factor in noncompliance. To overcome the fiscal barrier to quality care, a number of steps must be taken. An effective public education program must be established to reduce unnecessary uses of drugs. Cooperation must be increased between physicians and pharmacists in the prescription of drugs. Physicians should be encouraged to review their prescribing habits periodically. Finally, prescription drugs should be provided without charge or at subsidized rates for persons over 60 years of age.

Kalchthaler, T.; Coccaro, E.; and Lichtner, S. Incidence of polypharmacy in a long-term care facility. Journal of the American Geriatrics Society, 25(7):308-313, 1977.

DRUG	Prescription drugs
SAMPLE SIZE	100
SAMPLE TYPE	Nursing home residents
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Westchester County, New York
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Nursing home records
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	34

PURPOSE

The prescribing of multiple drugs to the elderly has become a source of concern in recent years. However, little research has focused on the incidence of multiple-drug prescribing in institutions for long-term care. Such research is important because elderly persons are known to be more vulnerable to adverse reactions because of smaller lean body mass and volume, the reduction in the reserve capacity of many organs, greater variability in the response to drugs, and the existence of multiple chronic diseases, among other factors. This study examined the incidence of multiple-drug prescribing in a 200-bed, long-term care facility.

METHODOLOGY

The drug record cards for 100 residents of St. Joseph's Hospital Nursing Home were drawn at random. The facility provides long-term care and is located in Westchester County, New York. Of the 200 beds, 80 are for skilled nursing care; the remainder are health related. The drug records were from two skilled nursing areas and one health-related area. The drug records were on file in the hospital's pharmacy.

The data concerned drug classifications, dosage, frequency of administration, and number of tablets or pills prescribed. The drug classifications included analgesics, antimicrobials, antihypertensive agents (including diuretics), cardiotonic preparations, and psychotropic drugs. Data were analyzed with respect to the number of pills prescribed daily per patient, the number of pills administered daily per patient, and the frequency of drug use in the classifications studied.

RESULTS

The mean number of drugs prescribed daily to each patient was 3.33, while the mean number of pills was 6.34. Almost three-quarters of the patients were receiving at least three drugs daily; 44 percent, at least four drugs daily; and 22 percent, at least five drugs daily. Half the patients were receiving at least 6 pills daily; 35 percent, at least 8 pills daily; and 22 percent, at least 10 pills daily.

The most frequently prescribed drugs were the analgesics, followed in order by antihypertensive agents, cardiotonic preparations, and antimicrobials. A total of 61 percent of all patients were receiving a psychotropic agent, including major or minor tranquilizers, mood elevators, and hypnotic drugs. Two patients had prescriptions for more than one major tranquilizer. Haloperidol (Haldol) was the most frequently prescribed major tranquilizer, and diazepam (Valium) was the most frequently prescribed minor tranquilizer. Flurazepam hydrochloride (Dalmane) was the most popular sedative agent. Three patients had prescriptions for both major and minor tranquilizers, and 13 patient prescriptions for sedative agents in addition to major or minor tranquilizers.

CONCLUSIONS

Although drug therapy, when used appropriately, can relieve many chronic disease symptoms and add both quality and quantity to the lives of the elderly, no drug can combat aging. Physicians may be tempted to prescribe drugs for every sign and symptom but must carefully assess symptoms and evaluate possible responses before initiating treatment. The elderly have both special therapeutic needs and unique responses to drugs. An aggressive and competent pharmacy committee to review drug use in a long-term care facility may be able to reduce drug-related problems and increase the quality of life for the facility's residents. In this instance, St. Joseph's has established a Pharmacy Committee to review all drugs used by the residents. The review is conducted monthly, and the committee can either recommend or initiate corrective measures.

DRUG	Flurazepam
SAMPLE SIZE	195
SAMPLE TYPE	Nursing home patients treated with flurazepam
AGE	Aged (range: 60 to over 90)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Minneapolis-St. Paul, Minnesota
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Hospital records
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	20

PURPOSE

Insomnia is a problem commonly encountered in geriatric patients. However, use of sleeping agents by the elderly may result in confusion, ataxia, depression, oversedation, and lethargy. Flurazepam (Dalmane) has become increasingly popular in long-term care facilities because chronic use does not alter its effectiveness as rapidly as other sleeping agents. However, a number of facilities have reported that flurazepam produces ataxia, confusion, and hallucinations in patients receiving the drug. For that reason, the utilization review committees in several facilities arranged a cooperative study on the safety of this drug, the results of which are reported here.

METHODOLOGY

As a first step, a literature review was undertaken to establish the reported untoward effects associated with the use of flurazepam. The study was contracted by and carried out in five skilled nursing facilities and two intermediate-care facilities in the Minneapolis-St. Paul metropolitan area. Nurses' and physicians' notes on patients who had received flurazepam were analyzed for evidence of possible drug effects.

RESULTS

Of the 750 patients in the 7 facilities, 195 (44 males; 151 females) had received flurazepam 1 or more times during the previous 12 months. Of the 195 flurazepam users, 130 received average daily doses of 1 to 15 mg, 63 received 16 to 30 mg, and 2 received 31 to 45 mg. A total of 51 users (26 percent) experienced side effects of the types previously reported for this drug. Of the total sample, 74 percent of the patients showed no side effects; 12 percent exhibited oversedation and lethargy; 2 percent showed disorientation and confusion; 2 percent, a combination of lethargy and confusion; 4 percent, ataxia; 3 percent, hallucinations; 1 percent, belligerence; 2 percent, depression; 1 percent, lethargy/ataxia; and 1 percent, other symptoms.

Duration of use tended to fall into patterns of either a week or less or 7 weeks or more. Fifty-one percent of the patients showing side effects had received flurazepam for 7 weeks or longer. When oversedation was separated out from other side effects, more than half the remaining problems were experienced by patients receiving seven doses a week. Twenty-seven percent of the patients with problems were also receiving antianxiety or antipsychotic agents.

CONCLUSIONS

The scope of the study does not allow definite confirmation that flurazepam is responsible for the problems noted in patients. However, more than half the patients with problems had been receiving the drug for 7 weeks or longer. The appearance of symptoms after long delay may be the result of the drug's long half-life and its tendency to accumulate. Under these conditions, the onset of problems may be insidious, making detection especially difficult.

The study results are sufficiently alarming that the utilization review committees directed nursing staffs to reassess the need for chronic flurazepam use. The authors recommend that, in general, sleeping agents be prescribed only in low doses for short periods after other forms of pharmacologic and nonpharmacologic intervention have been tried.

Milliren, J.W. Some contingencies affecting the utilization of tranquilizers in long-term care of the elderly. Journal of Health and Social Behavior, 18(2):206-211, 1977.

DRUG	Tranquilizers
SAMPLE SIZE	131
SAMPLE TYPE	Nursing home patients
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Multivariate analysis; secondary analysis
DATA COLLECTION INSTRUMENT	Interviews; physical dependency scale; Mental Status Quotient
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	17

PURPOSE

The social organization of medical care has served as a framework for a number of studies on the contingencies and strategies affecting the treatment process. From such a perspective, medical care is viewed as a process that defines the experience of illness and organizes the career of the sick. This particular study explores the use of drugs in a long-term care facility for the elderly, focusing on anxiety level, sex, mental status, physical dependency, friendliness to the staff, and friendliness to other patients as factors influencing the administration of major tranquilizers.

METHODOLOGY

The study sample consisted of 131 patients in a long-term care facility for the elderly; 46 of the patients were receiving major tranquilizers. The institution had 300 beds for severely brain-damaged persons, for more self-sufficient ambulatory persons, and for severely disabled patients. Physical dependency was measured on a scale for such activities as washing, mobility, feeding, and bladder function. Mental status was assessed by the Mental Status Quotient as an index of overall mental status in the elderly. Patients and the nurses in charge of their care were interviewed. The relationship among the variables examined was assessed using chi-square, and the strength of association, using Yule's Q.

RESULTS

Findings indicate that there is no significant relationship between anxiety, level of physical dependency, or friendliness and the use of tranquilizers. In contrast, a significant relationship exists between receiving tranquilizers and being female, having low mental status, and being judged unfriendly to the staff. The association between tranquilizers and low mental status as well as unfriendliness to the staff suggests that tranquilizers may serve as a means of managing difficult patients.

Women are apparently more likely than men to receive tranquilizers because they are more anxious than men. However, even when the anxiety factor is controlled, anxious females are significantly more likely than anxious males to receive tranquilizers. Therefore, a joint effect appears to exist between anxiety and being female that apparently accounts for the use of major tranquilizers in this context. Although males with low mental status or judged unfriendly to the staff are likely to be given tranquilizers, no significant differences in tranquilizer administration are apparent for females with these characteristics, indicating that the association is specific to male patients. Thus, whether the patient is male or female affects the probability of receiving tranquilizers and the conditions under which tranquilizers are administered.

Because nursing home staff tend to assume that there is a higher level of emotional instability in women than in men, females are more likely to be given major tranquilizers than men. Emotional problems in men are discounted, so that they do not receive tranquilizers as often.

CONCLUSIONS

Findings indicate that anxiety, low mental status, and unfriendliness to the staff affect the use of major tranquilizers when these characteristics are linked to the appropriate sex role. Sex roles are thus a significant contingency affecting the use of tranquilizers in nursing homes. The different patterns of administering tranquilizers to males and females reflect differing problems of social control for the staff in dealing with male and female patients. The identification of social forces and biases affecting the use of major tranquilizers emphasizes the need for drug review committees in nursing homes to consider the appropriateness of drug administration.

Fracchia, J.; Sheppard, C.; Canale, D.; Ruest, E.; Cambria, E.; and Merlis, S. Combination drug therapy for the psychogeriatric patient: Comparison of dosage levels of the same psychotropic drugs, used singly and in combination. Journal of the American Geriatrics Society, 23(11):508-511, 1975.

DRUG	Prescription psychotropic drugs
SAMPLE SIZE	902
SAMPLE TYPE	Hospitalized mental patients
AGE	Mature adults; aged (all over age 60)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Comparative study; secondary analysis
DATA COLLECTION INSTRUMENT	Hospital records
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	13

PURPOSE

Several recent studies indicate that the practice of combining two or more psychotropic drugs appears to be sex related, age related, and relatively independent of diagnosis or symptoms. Additional data seem to support the conclusion that no sound theoretical or empirical rationale exists for the use of most psychotropic drug combinations. Psychoactive drug combinations should still be viewed as new treatment forms requiring research into relative compatibility, efficacy, dose-response factors, and side effects.

Although combination drugs are often justified on the grounds that lower doses of more drugs will produce fewer side effects than a large dose of one drug, no one has yet produced data showing that clinicians do use smaller doses when drugs are given in combination. This study examined and compared the dosage levels for several frequently prescribed psychotropic drugs when used singly and when used in combination. The subjects were long-term hospitalized psychogeriatric patients.

METHODOLOGY

Data were obtained for 278 male and 624 female mental patients over age 60. The data came from a larger survey of hospital treatment practices. The data forms recorded drugs currently used, dosages, duration of medication, and any use of other drugs in the year preceding the survey month. The average total daily dosages of the most frequently used psychotropic agents in both single- and multiple-drug programs were determined.

RESULTS

For the female patients, the average multidrug dose was higher than the average single-drug dose for 10 of the drugs. For only four of these drugs were the differences significant. In one instance the average dose for the single drug was higher than for the same drug administered in combination, but this difference was not statistically significant. Although fewer drugs were compared in the male group, the same general trend was evident. The average level for combined dose was equivalent to or higher than that for a single dose.

CONCLUSIONS

Psychiatrists treating long-term patients in a mental hospital do not appear to use significantly lower doses of a psychoactive drug when it is part of a combination than when it is the only psychotropic agent administered. In fact, a tendency exists toward prescribing significantly higher dosages for the same drugs when used in combination. Thus, the hypothesis that clinicians use two psychotropics in lower doses to reach a therapeutic response with fewer side effects is questionable.

Since the single-drug and the multiple-drug groups were comparable in composition with regard to other factors that might influence dosage (age, sex, length of hospital stay, diagnosis), dose differences cannot be attributed to these factors. It is unlikely that differences in symptomatology existed between the two groups to justify the drug selection, since both groups were of advanced age and had had long-term illness. The choice of treatment with combination drugs may be based more upon the availability of numerous potent but only partially effective psychotropic agents than upon the results of well-controlled comparative studies, which clearly show that these drugs would be the treatment of choice for specific forms of psychiatric illness.

Heller, F.J., and Wynne, R. Drug misuse by the elderly: Indications and treatment suggestions. In: Senay, E.; Shorty, V.; and Alksne, H.; eds. Developments in the Field of Drug Abuse: National Drug Abuse Conference 1974. Cambridge, Mass.: Schenkman Publishing, 1975. Pp. 945-955.

DRUG	Multidrug
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly users
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	35

PURPOSE

Drug treatment programs are now beginning to see increasingly larger numbers of people aged 50 and above. According to the Drug Abuse Warning Network for the first half of 1973, 6 percent of drug incidents with barbiturates, tranquilizers, and alcohol in combination with other drugs involved individuals over age 50. Further, a Client Oriented Data Acquisition Process report shows that 3.7 percent of drug abuse clients in treatment are over 45 years of age.

Other estimates of the proportion of persons over 45 years old admitted to hospital emergency rooms for drug overdoses ranges from 5.4 to 26 percent. The number of older addicts in treatment is expected to grow even more in the next decade. The present study reviews the literature on psychoactive drug and alcohol use, as well as on treatment recommendations for older addicts.

SUMMARY

Psychoactive drug use. Although they make up only one-tenth of the population, the elderly receive over one-quarter of all prescriptions written and spend three times as much per capita on prescription drugs as do younger people. Psychoactive drugs most commonly used by older

adults appear to be stimulants, sedatives, and tranquilizers. More females than males report frequent use. Tranquilizer use is concentrated in the middle years, while sedatives are more commonly used during old age. An estimated half of the drugs prescribed for older people have psychoactive properties.

The large quantities of psychoactive drugs prescribed for the elderly suggest that a serious drug dependence problem exists in this group. Evidence of causal relationships are apparent when considering that advertising is geared toward encouraging the elderly to use drugs as a means of escape from all common ailments. Because of changes in anatomy and physiology, pharmacologic agents may be abnormally absorbed, assimilated, metabolized, and excreted. Furthermore, there is considerable overprescribing of tranquilizers and sedatives in nursing homes as a control strategy. Nearly a fifth of the patients in general hospital geriatric services display effects attributable to drug use.

Women use more psychoactive drugs than men. At the same time, patterns of polydrug use prevalent among the young are mirrored by older drug users. Drug abuses are frequent because the elderly tend to hoard drugs, to self-medicate, and not to follow dosage instructions. Despite the fact that physicians, nurses, and social workers receive little formal instruction in specific uses of psychopharmacologic agents in mentally disturbed older persons, the amounts of psychoactive medication being prescribed are expanding to segments of the elderly population who know neither the benefits nor the dangers of such drugs.

Alcoholism. Alcoholism is a serious problem for the elderly. Heavy drinking peaks for men between the ages of 45 and 49, with 30 percent of the men so affected. The percentage drops to 22 percent of men aged 55 and 10 percent of men at 65. About 13 percent of men aged 55 to 59 have alcohol-related problems. The number of women in this age group with such problems has grown but remains small. The elderly who began drinking late in life seem to respond most readily to antidepressant and socialization therapy.

The aging addict and treatment modes. Earlier literature has argued that no elderly addicts were visible because they matured out of their addiction. More recent studies, however, suggest that many individuals between the ages of 45 and 75 have not stopped using opiates. In fact, the growing population of people in their thirties and forties on methadone maintenance may constitute even more of a problem than the relatively small number of elderly addicts now in treatment. A decline in the quantity and quality of street drugs will force older addicts into methadone treatment and will encourage them to search for new drug substitutes, which may result in an increase of side effects and drug interactions in elderly users.

Outreach programs have been developed in several cities to locate the older drug-dependent person. Such programs may work through physicians, pharmacists, parent groups, or alcohol programs; create public education campaigns; or lobby local medical associations to take an active role in physician reeducation. Problems in treatment include the difficulty of adjusting dosages of methadone to fit Government maximum levels and difficulties in convincing nursing homes to accept methadone-maintained patients.

Mutually gratifying interpersonal relationships such as those formed during wine and beer hours for patients and staff are essential in replacing major and minor tranquilizers in a geriatric facility. Such relationships are also constructive in crisis centers and therapeutic communities. Some alternative methods for getting at the roots of disorders for which psychoactive drugs are prescribed are relaxation therapy for drugs; alleviation of symptoms by determination of the source of anxieties, tension, and so forth; treatment of basic physical and nutritional conditions; motivational therapy, including vocational training; alternative health care, such as homeopathic medicine; and, as role models, use of elders who have adopted some of these concepts as role models.

Like young people, the elderly use drugs to alleviate boredom and loneliness and to help cope with rapid social changes and the stresses and strains of this particular period of life. The underlying causes of chemical dependence in the elderly, based on an understanding of their rapidly increasing poverty and society's attitude toward them, must be recognized. Society's attitudes have created the living conditions of the elderly and the problems that emerge from the way they live. The pharmacological solution to these problems has been the use of sedatives, tranquilizers, hypnotics, barbiturates, and even amphetamines to medicate the elderly. For real improvement, however, not only treatment programs, but political and attitudinal changes are required.

CONCLUSIONS

Drug use and abuse, as well as alcoholism, among the elderly are far more serious problems than early researchers recognized. Treatment methods should attempt to find alternative solutions to the problems masked by drugs. Long-term changes in society's attitudes toward the poverty and unrewarding lifestyle of the elderly are needed for real improvement.

DRUG	Nonnarcotic analgesics; tranquilizers; sedatives
SAMPLE SIZE	1,128
SAMPLE TYPE	Total overdose emergency room admissions; aged admissions
AGE	Elderly cohort: mature adults; aged (range: 50-80; mean: 59.6)
SEX	Both
ETHNICITY	Black; white
GEOGRAPHICAL AREA	Miami, Florida
METHODOLOGY	Descriptive study; comparative study; secondary analysis
DATA COLLECTION INSTRUMENT	Hospital records
DATE(S) CONDUCTED	1972
NO. OF REFERENCES	14

PURPOSE

Drug use and misuse among the elderly continue to be neglected areas of research in the field of social gerontology. The acute drug reaction, in particular, is a problem of considerable importance to those concerned with the problems of the aged. The present study describes demographic and social characteristics of elderly persons treated for nonfatal but acute drug reactions in a hospital emergency room. Comparisons of this elderly cohort with the total number of acute drug reaction admissions to the hospital are also presented.

METHODOLOGY

Study data were gathered from the patient records of 60 persons over 50 years old (out of 1,128 admissions) who were treated for overdoses at Jackson Memorial Hospital in Miami during 1972. Evidence documenting the overdose was based on a medical history gathered from the patient by medical staff. In some cases, verification of the diagnosis was derived from laboratory analysis.

RESULTS

Characteristics of the aged admissions. Patients over age 50 made up only 5.4 percent of the total overdose admissions. Of the older cohort, 85 percent were white and 15 percent black. The age of the sample ranged from 50 to 80 years old (mean: 59.6). Overdose admissions of elderly persons were more likely to be female than male (68.4 versus 31.6 percent). While white females were far more likely to be admitted for acute overdose reactions than any other race or sex grouping for both the aged cohort and all admissions, the proportion is much more striking among the aged, with white females accounting for almost two-thirds of all admissions among the aged. Persons over age 50 are not overrepresented among emergency room admissions for overdoses. However, within the aged group, female overdose admissions, white female overdose admissions, and black overdose admissions exceeded the distribution of those groups in the overall Dade County population (68.4 versus 55.3 percent, 61.7 versus 51.4 percent, and 15 versus 7.2 percent, respectively). Black elderly males were admitted for overdoses slightly more often than black elderly females.

Although most patients listed only one substance as being responsible for their overdose admission, almost one-fourth (23.5 percent) of all patients and almost one-third (31.9 percent) of aged patients admitted to using two or more substances together. However, the aged patients admitted were somewhat less likely than the general patient population to have combined drug and alcohol use. In both aged and general populations, accidental overdoses (e.g., from a desire for a euphoric effect or self-medication) account for the majority of admissions, although about one-third of the overdoses were suicide attempts.

Substance abused. A total of 30 different drugs were identified by the aged cohort as having caused acute drug reactions. All admissions among the aged cohort, as opposed to 79.4 percent for general admissions, were the result of overdoses of legally available drugs. Moreover, 80.9 percent of acute drug reactions among the elderly involved abuse of legal psychotropic drugs (sedatives and tranquilizers), compared to 60.3 percent for general admissions. Overdoses from nonnarcotic analgesics accounted for an additional 10.6 percent of the aged admissions.

Most frequently misused drugs were diazepam (Valium), sodium secobarbital and sodium amobarbital (Tuinal), phenobarbital (Luminal), and propoxyphene hydrochloride (Darvon). Among aged overdose patients, the use of tranquilizers, sedatives, and nonnarcotic analgesics prior to the acute drug reaction experience was most consistent for whites and females.

CONCLUSIONS

These data document conclusively the dangers of the misuse of the psychotropics (sedatives and minor tranquilizers) among the elderly. The significance of these drugs as causal agents in the majority of accidental overdose and suicidal gesturing cases cannot be denied. Although further data collection and analysis are required for confirmation, these observations suggest that chronic misuse resulting in accidental overdose is greater with minor tranquilizers than with sedatives, but deliberate overdoses more frequently involve sedatives. Regardless of such future determinations, emergency room personnel must be made aware of the fact that the overwhelming majority of all acute drug reactions among the elderly will involve the life-threatening problem caused by an overdose of sedatives or tranquilizers.

Brand, F.N., and Smith, R.T. Medical care and compliance among the elderly after hospitalization. International Journal of Aging and Human Development, 5(4):331-346, 1974.

DRUG	Prescription drugs
SAMPLE SIZE	114
SAMPLE TYPE	Elderly persons recently discharged from the hospital
AGE	Aged (average: 70.2)
SEX	Both
ETHNICITY	Canadian
GEOGRAPHICAL AREA	Halifax, Nova Scotia, Canada
METHODOLOGY	Longitudinal survey; retrospective survey
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	1972
NO. OF REFERENCES	30

PURPOSE

Elderly patients have more medical conditions, more need for care, and hence more need for direction not only in the hospital but also after discharge to their homes than do younger persons. However, physicians and other hospital staff know little of their patients' home circumstances. Continuation of care can therefore be interrupted by a patient's lack of compliance with the advice and instructions given by the physician. This study examined the availability and continuity of medical care and the level of compliance with medical recommendations, using a sample of 114 chronically ill patients discharged from 1 Canadian hospital.

METHODOLOGY

The initial study population consisted of 158 patients discharged consecutively from the inpatient medical services of the Victoria General Hospital, Halifax, Nova Scotia, Canada, between May 1, 1972, and July 31, 1972. The 114 patients who were available for followup 6 months after discharge constituted the final sample. The patients had diseases of the circulatory system, rheumatoid arthritis, diabetes mellitus, and malignant neoplasms. The sample included 58 males and 56 females with an average age of 70.2. Over one-third of the patients were in the low socioeconomic group, and the average number of years of education was 7.9. Almost one-third of the interviewed patients lived alone or with unrelated persons.

Trained interviewers visited the patients 6 months after discharge to obtain information about the outcome of medical care in terms of mortality, morbidity, functional capacity, use of various sources of medical care, and compliance with the orders given by the attending physician at the time of discharge. The chi-square test was used to compare those who carried out all doctors' instructions with those who did not follow some or all of the orders.

RESULTS

Of those aged persons who had been discharged at the time of the interview, 55.3 percent remained in the same health status, 14.9 percent had improved, and 29.8 percent had become worse. A total of 36.8 percent of all the interviewed subjects had been readmitted one or more times to a medical care institution. Men were more prevalent than women among those readmitted, as were the older groups, unmarried persons, those living alone, and members of the lower socioeconomic group.

A total of 42.1 percent of all the patients interviewed did not comply with one or more of their physicians' recommendations. The reasons for not complying with the orders were related to the deficiencies of community health and social agencies, the patient's attitude to understanding of the instructions, the cost of drugs, and other factors. Noncompliance increased with the increasing severity of disease.

One fifth of the elderly working patients had to change or modify their jobs due to illness, while 32.4 percent lost their jobs. The patients had a high utilization rate of hospital services, outpatient clinics, and family practitioners. The utilization of the Victorian Order of Nurses and social services was low.

CONCLUSIONS

The successful care of disabling diseases depends very much on the cooperation of patients and their families. This and other followup studies have demonstrated the great frequency of non-compliance with physicians' recommendations. Compliance depends on many factors, including poverty, discontent, fears about the disease, and doubts about the value of the recommended treatment. The lack of compliance is also related to marital status, education, income, and severity of disease.

Patients who are discharged from the hospital need posthospital care, which should be better coordinated with the available community services. Better methods of communication between hospital and family physicians would improve and ensure continuity of care for their patients.

DRUG	Opiates; alcohol; methadone; psychoactive drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Street addicts; addicts in methadone maintenance treatment
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	16

PURPOSE

Despite the general belief that narcotic addicts "mature out" of their habit and cease deviant behavior in later years, recent evidence disputes this assumption. The number of elderly persons in treatment, particularly methadone maintenance, is increasing, and both alcoholism and psychoactive drug dependency are gaining ground. The present study documents patterns of narcotic and psychoactive drug use among the elderly.

SUMMARY

Opiates and methadone maintenance. Methadone maintenance treatment programs have provided researchers an improved view of the older opiate addict. Most studies of such subjects show a history of several years using hydromorphone (Dilaudid) before starting methadone treatment. In the view of older addicts, the quality of street heroin is unreliable, making the drug especially dangerous. However, some addicts continue to use heroin despite its disadvantages, and decreases in the use of opiates by elderly addicts seem to be strictly for economic reasons. Elderly addicts continue to obtain their drugs from the local pusher, although physicians, friends, and clinics can be alternate sources of supply. Other opiates frequently used by older addicts are morphine, codeine, and paregoric; barbiturates and other depressants are also used.

The number of older multiple-drug users is small but is expected to increase as younger, multiple-drug users grow older. Alcoholism continues to be one of the serious problems of methadone maintenance patients. Alcohol and other drugs are used to produce the euphoria methadone does not provide and to fill the void of a life that seems empty and meaningless.

Methadone treatment is by far the most common modality used by the older opiate user. Although the number of such persons in treatment programs is small, the not-too-distant future will bring an actual and relative increase in the number of elderly patients in methadone treatment because of trends in the general population. In addition, elderly methadone patients are least likely to request detoxification and are generally very unhappy with any change in dose. This circumstance may reflect a decreased tolerance to the physiologic changes and to the sleep disturbances accompanying methadone dose changes.

Psychoactive drugs. A large population of elderly drug users receives a variety of legally prescribed psychoactive compounds. An age-related hazard exists simply because of the quantity of drugs prescribed to placate the multiple complaints of the elderly. The problem is made worse by prescribing habits of physicians conditioned by the massive propaganda campaigns of the pharmaceutical industry. Furthermore, many poor isolated urban residents obtain care from a variety of institutions and physicians.

A study of elderly residents of Manhattan, New York, shows that a number receive nonpsychoactive drugs: diuretics, 36 percent; digitalis preparations, 24 percent; acetaminophen (Tylenol), 24 percent; and aspirin, 15 percent. Psychoactive drugs prescribed for the same group include propoxyphene (Darvon), 24 percent; chlordiazepoxide (Librium), 12 percent; and diazepam (Valium), 7 percent. Other persons were given a variety of sedatives, hypnotics, and tranquilizers, including chloral hydrate, pentobarbital, meprobamate, phenothiazines, and antidepressants. A total of 19 percent of the patients were receiving at least 2 psychoactive drugs; 10 percent, 3 prescriptions; and 2 percent, 7 drugs.

Data from the Drug Abuse Warning Network, drawn from the population at large and not just poor inner-city residents, show barbiturates to be the leading drugs of abuse among persons over 50 years of age, followed by benzodiazepines, tranquilizers, and alcohol in combination with other drugs. The data do not indicate how many of the individuals were drug dependent, but the high exposure rates and the frequency of marginal mental compensation enhance the likelihood of problems. Drug-induced confusion and sleep disturbances can be related to diminished resistance to infection and illness.

Alcohol. Alcohol abuse must be considered the Nation's primary drug problem. Alcoholism rates are extremely high among the isolated elderly; estimates for alcoholism in elderly male hospital populations range from 15 to 63 percent. Geriatric alcoholics may be either lifelong alcohol abusers with serious complications from their habit or late-onset drinkers who have begun drinking in response to the stresses of aging.

CONCLUSIONS

A number of studies indicate that drug dependence and alcoholism among the elderly are major problems. Most abuse appears to occur with the use of depressants, including alcohol, and opiates. The elderly narcotic addict continues to use drugs while making compromises to maintain a low profile and avoid legal harassment. These addicts are reluctant to join methadone treatment programs, and if they do, find that their specific needs are not met.

Existing programs must make efforts to accommodate the elderly, as the numbers of such addicts are expected to increase dramatically in the coming decades. The geriatric population in general is at risk of dependency problems because of the large numbers of legal drugs they consume. Centralized care for the elderly would discourage procurement of drugs from a variety of sources. Techniques of treatment and diagnosis for drug abuse among the elderly should be made a regular part of medical school curriculums.

DRUG	Psychiatric drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Hospital patients
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Brisbane, Australia
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	5

PURPOSE

As 10 case studies from the author's psychiatric practice at Wolston Park Hospital in Brisbane, Australia, illustrate, mental symptoms of confusion may result from physical illness rather than from chronic brain syndrome. Careful attention must be paid to accurate diagnosis before drugs are prescribed since the drugs themselves may contribute adversely to the patients' mental and physical symptoms. The safety of particular drugs must also be carefully assessed. This study reviews drugs frequently used to treat elderly patients and the potential side effects of these drugs.

SUMMARY

Theoretically, the monoamine oxidase inhibitors are drugs of choice in the treatment of reactive depression, while the imino-benzene derivatives are drugs of choice for endogenous depressions. However, the monoamine oxidase inhibitor group has come under fire in the last few years as unsafe under some conditions. For example, iproniazid may cause liver damage and even death. Combined with epinephrine, tranylcypromine sulfate may trigger headaches, hypertension, hyperpyrexia, and cerebral hemorrhage.

If a patient's depression does not respond to the monoamine oxidase inhibitor, 10 days' delay is required before starting an imino-benzene derivative so that a severe hypertensive reaction does not occur. Imino-benzene therapy should be tried before electroconvulsive therapy to avert possible fatal complications in elderly patients with hidden pneumonia.

Chlorpromazine is believed by some to be effective in treating elderly agitated patients, but other research suggests that the drug produces no results whatsoever. Although many elderly demented patients reportedly receive these tranquilizers unnecessarily, the drugs are useful both in treating specific crises in the elderly and in controlling symptoms so that patients can be placed in convalescent homes or released.

Cerebral arteriodilators can, theoretically, by improving blood flow, cause an increase in cerebral oxygen consumption and an improvement in psychic and physical symptoms. Unfortunately, as blood flow cannot be measured accurately, it is impossible to judge the effectiveness of such drugs.

Phenothiazines are employed to treat senile and arteriosclerotic dementias (70 percent of admissions) and the heterogeneous group of alcoholics, schizophrenics, epileptics, and patients with miscellaneous organic diseases (15 percent of admissions). The drugs are also useful in short-term treatment of hypomanics; of those patients suffering from acute confusion (such as may occur after heart failure); and of mixed psychotic reactions, nausea, and alcoholism. The drugs are commonly misused to relieve neurotic reactions and endogenous depressions. The biggest therapeutic error is prescribing too small a dose.

Diazepam and oxazepam are helpful in counteracting anxiety, especially with tension headaches, and in controlling epileptic seizures. Phenytoin provides relief from sensory seizures after a cerebrovascular accident. This drug can be reduced gradually as the patient's mental symptoms improve. Barbiturates, especially amobarbital, are often useful in treating acute anxiety attacks. The danger of using barbiturates as sedatives is that insomnia is often treated as a disease rather than as a symptom.

Whether or not a drug is worthwhile is dependent on both the success of therapy and the severity of side effects. One commonly used therapy assessment system includes evaluation of (1) general physiological effects, such as somnolence or neurological effects, endocrine changes, autonomic alterations, and mood fluctuations, and (2) general organ toxicity, such as effects on the liver, bone marrow, skin, or retina.

The most common side effects from phenothiazines are oversedation and development of permanent parkinsonian symptoms. Chlorpromazine may produce profuse sweating and severe hypotension, imino-benzenes may cause postural hypotension, reserpine may result in severe endogenous depression, and the imino-benzenes may cause patients under treatment for depressive illnesses to become euphoric and even hypomanic. Iproniazid is a cause of liver damage, even hepatic coma, and chlorpromazine jaundice is not an uncommon side effect. Chlorpromazine can cause mesodermal infiltration and lens opacity.

CONCLUSIONS

Correct diagnosis is essential before physicians can select the proper drugs for treatment of mental conditions in the elderly. Moreover, any medication given should be strictly supervised. Of the wide variety of drugs used for the treatment of the elderly, most can have physiological effects such as somnolence or can cause general organ toxicity.

DRUG	Chlorpromazine
SAMPLE SIZE	50
SAMPLE TYPE	Hospital patients
AGE	Aged (range: 62-89; average: 76.54)
SEX	Female
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Great Britain
METHODOLOGY	Clinical observation
DATA COLLECTION INSTRUMENT	Observations; questionnaire
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	6

PURPOSE

Conflicting evidence exists regarding the usefulness of potent tranquilizers in the long-term treatment of elderly patients with dementia in psychiatric hospitals. Several studies have indicated that chlorpromazine (Thorazine) improves social adjustment and reduces agitation, while other studies have shown that chlorpromazine and placebos had similar effects. This study used a clinical trial to clarify the usefulness of chlorpromazine.

METHODOLOGY

The subjects consisted of 50 female patients in 6 British hospital wards. The patients ranged from 62 to 89 years of age at the start of the trial, with an average of 76.54 years. They had been in the hospital continuously for an average of 18 months. Clinical diagnoses were mainly of senile psychosis or arteriosclerotic psychosis but also included posttraumatic dementia and paraphrenia with superadded senile psychosis. The patients had received tranquilizers continuously for an average of 7 months and 10 days.

In the double-blind trial, patients were given either chlorpromazine or an inert syrup that was similar in appearance. In three wards, placebo was substituted for chlorpromazine after 1 week.

Chlorpromazine was continued in the other three wards. After 3 weeks, the substances were reversed and continued for 3 more weeks. The results of the ratings for the last week during which the patient had taken chlorpromazine (before changing to placebo) were compared with those for the third week of placebo administration, using the standard error test.

Subjects were rated three times daily by the nursing staff for the absence, presence, and degree of existence of seven symptoms: agitation, overactivity, resistiveness, noisiness, incontinence, insomnia, and idleness. Ward nurses were asked each week to indicate whether they believed the patients on their ward were receiving chlorpromazine or placebo.

RESULTS

The opinions of the ward nurses regarding which substances were being taken did not differ significantly from random, indicating that either their opinions or the tranquilizers were useless. According to the standard error test, the patients exhibited significant but slight deterioration in agitation, overactivity, resistiveness, noisiness, and incontinence. Measures of insomnia and idleness did not change significantly. On each measure, several patients showed improvements of more than 10 percent when taking the placebo.

CONCLUSIONS

The trials reported in this paper indicate that about 80 percent of elderly demented patients are receiving tranquilizers unnecessarily. However, the use of tranquilizers prescribed for short periods to meet specific crises in elderly demented patients was not evaluated in this study.

DRUG	Prescription and over-the-counter medications
SAMPLE SIZE	178
SAMPLE TYPE	Chronically ill ambulatory patients
AGE	Mature adults; aged (over 60)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	New York City
METHODOLOGY	Retrospective survey; descriptive survey
DATA COLLECTION INSTRUMENT	Interviews; hospital records
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	10

PURPOSE

The problems associated with self-administration of prescribed medications by ambulatory patients are recognized as an area needing study. Since patients are becoming increasingly responsible for their own treatment with oral medications, the question of patient error is a critical one. This study examined the frequency and nature of medication errors among ambulatory elderly patients and obtained information in much the same manner as that used in taking diet histories.

METHODOLOGY

The drug histories of 178 elderly, chronically ill, ambulatory patients attending the General Medical Clinic of New York Hospital were obtained. The patients constituted all the available patients from a 10 percent random sample of the 2,208 patients who were age 60 or over, who had more than 1 diagnosed chronic disease, and who were currently known to the clinic. Patients were interviewed to determine what medications they took, the purpose of the medications, and the frequency of dosage. It was considered an error if a medicine was (1) taken by the patient but not ordered by the doctor; (2) ordered by the doctor but not taken by the patient; or (3) ordered by the doctor but taken in incorrect doses, or at the wrong time, or with total lack of understanding of its purpose. Only gross errors regarding a medication's purpose were considered to constitute lack of understanding.

Patients' statements were compared with hospital records. Each error was classified as potentially serious or not, generally by means of chart review by a jury of two nurses and a physician.

RESULTS

A majority of the patients (59 percent) were found to be making one or more errors in their use of medications, but only 26 percent made potentially serious errors. Those who erred at all were more likely to make multiple mistakes than single mistakes, with an average of 2.6 errors per patient making an error.

The most common type of error was the omission of medication, while the next most common errors related to inaccurate knowledge of the medication's purpose, mistakes in self-medication, and improper timing or sequence. Errors of omission were five times as common as errors in timing or sequence and may have been the result of doctor-patient communication problems or events in the patient's life situation (i.e., health or economic conditions).

Men and women had similar error rates, as did those who could read English and those who could not. However, error-makers were more likely to be over the age of 75 than under that age; to be widowed, divorced, or separated rather than married or never married; to live alone rather than with others; to have little education rather than much education; and to be Catholic rather than Protestant or Jewish. They were also more likely to have a large number of diagnoses and to be judged to be coping with their environment poorly. Nevertheless, on the whole, the differences were not large. Generalities about proneness to error among particular groups of patients were impossible to make, since error-making occurred among all categories of patients in the study sample with sufficient frequency to require the entire population to be considered at least potentially at risk.

CONCLUSIONS

Individual evaluation is needed to determine which individuals among the elderly, chronically ill population are at risk of medication errors. Physicians, clinic nurses, public health nurses, and pharmacy staff should be alert to the circumstances that lead to or prevent medication error. Preventive measures should be instituted, such as more careful labeling of drugs, slower and more thoughtful teaching, and more imaginative use of visual aids. The medication history is a useful tool in clarifying the patient's medication behavior to determine how much responsibility can be delegated to a specific patient. Professionals should also try to combat their human tendency to feel a sense of personal failure when a patient makes an error. Prevention of errors in medication by patients should be approached as realistically as any other preventable complication of aging and chronic illness.

PHARMACOLOGY AND THERAPEUTICS



PHARMACOLOGY AND THERAPEUTICS

Peter P. Lamy, Ph.D., F.C.P.

Drug abuse, or inappropriate drug use, occurs among the elderly because of a general lack of guidelines for the use of drugs with geriatric patients. The wide differences in the rates of decline of organ and enzyme systems with age often result in a wide variability in response to drugs and lack of ability to predict that response, and clinical judgment is still the mainstay of drug prescribing for older adults. Drug abuse or inappropriate drug use also results from lack of acceptance of those principles of geriatric medicine elucidated by the field or from lack of dissemination of current knowledge or lack of its application. Furthermore, biomedical research has not advanced sufficiently to take into account the needs of this rapidly increasing segment of our population. It is still the norm that new drugs are given first to normal, healthy, young volunteers, among whom females tend to be underrepresented. These studies serve to evaluate drug tolerance, safety, and pharmacokinetics, but they do not necessarily illuminate a drug's efficacy, which should be established by studying the drug in persons with the disease state to be treated, nor do they reveal the action of a drug given chronically. Drugs do have the capacity to adversely affect a patient's mental, physical, physiological, nutritional, and functional status. Often, still, dosage recommendations are based on single-dose pharmacokinetic studies, but pharmacokinetic indices may change when a drug is given on a multiple-dose schedule.

It is generally accepted that the elderly are more sensitive to drugs and their actions and side effects, even when the "usual" adult dose is given. Perhaps their threshold for therapeutic response and toxicity is lower than that of younger adults. The adage of "start low and go slow" is often cited, but it is not always helpful. Low doses, given in an effort to avoid untoward drug effects, may lead to a lack of therapeutic response (in the case of antidepressants), and subminimal inhibitory concentrations of antimicrobial agents may even lead to bacterial multiplication and other problems. Complicating the difficult process of appropriate prescribing for the elderly is the fact that many studies produce conflicting data, that generalizations are therefore difficult, and that many basic questions have not yet been answered.

Central nervous system (CNS) drugs present many varied problems in the elderly. The elderly often suffer from chronic pain, and as in all age groups, narcotic analgesics would not be indicated unless there is a well-defined cause of the pain. Chronic pain patients often benefit from approaches other than drug use. Narcotic analgesics, such as morphine or meperidine, may depress an elderly patient's respiratory function, decreasing both tidal volume and respiratory rate. A clouding of the sensorium can also result from the use of narcotic analgesics. There is a depression of the cough reflex and, thus, clearance of the respiratory tract. Orthostatic hypotension and constipation are byproducts of narcotic analgesic use in the elderly, and so is the development of tolerance. Psychotropic drugs have found increasing use as analgesic adjuvants, even though the combination of narcotics with drugs with sedative effects may well result in increased and undesirable sedation and not necessarily in increased analgesia.

Neuroleptic analgesia is thought to reduce the need for postoperative analgesic drugs. Tricyclic antidepressants, particularly amitriptyline, have been used as analgesic adjuvants in cases of trigeminal neuralgia and tension headache. Doxepine, a potent H_1 receptor blocking agent, is used as an analgesic in certain instances, as it releases endogenous enkephalins. Dextroamphetamine is claimed to increase the analgesic effect of morphine, permitting a reduced dosage of that narcotic. However, adequately designed and controlled clinical trials are still needed to support the use of psychopharmacologic agents as analgesic adjuvants.

The brain of older adults is often deficient in choline acetylase. This deficiency can be exacerbated by anticholinergic drugs. It is possible that confusional states seen in elderly patients treated with centrally acting drugs with an anticholinergic effect, such as conventional antiparkinson drugs or the tricyclic antidepressants, stem from this deficiency state. Dopamine may also be deficient, and this may account for the increased susceptibility of elderly to the Parkinson syndrome induced by antipsychotics. Normal aging effects or the effects of pathophysiologic changes with age in the brain appear to make the brain more sensitive to the sedative effects of

antipsychotics, which would be particularly harmful in the case of an already confused elderly person. What is urgently needed are comparative statistics on the anticholinergic potency of all centrally acting drugs, including the antihistamines, which the elderly may use frequently as over-the-counter drugs. This would permit a prescriber to select from among several drugs with similar therapeutic effects but different side effects, particularly the anticholinergic effects.

Sleep patterns of the elderly show changes when compared to younger adults. Awakening time increases and REM sleep decreases, as does Stage IV sleep. The fall in slow-wave sleep, the most restorative part of all sleeping stages, is probably most serious. Many factors, including diseases, problems, and disabilities, as well as many drugs (diuretics, for example) can be the cause of insomnia, and they should be ruled out before the use of hypnotics is considered. Long-term use of these drugs can lead to physical and physiological dependence and, on withdrawal, to profound agitation, autonomic hyperarousal, and rebound insomnia. Of all hypnotics, the benzodiazepines are probably the safest to use for the elderly, if one keeps in mind that long-term use can lead to suppression of REM sleep and CNS adaptation. Side effects, particularly carryover effects and hangover, are usually dose dependent.

The use of antidepressants is still largely based on patient history, clinical experience, and careful differential diagnosis. Many drugs are associated with depression and can precipitate depression, among them several antihypertensive agents, sedative-hypnotics, antiparkinson drugs, corticosteroids, hormones, antitubercular drugs, and potassium-depleting diuretics. Although the dexamethasone suppression test is a step forward, it is still extremely difficult to separate depressive illness from brain failure; a method that will allow a clear distinction between brain failure and depression is still urgently needed. For example, impairment of concentration can be part of the depressive syndrome, and functional impairment may be ascribed to brain failure.

The antimanic drug lithium is frequently used for the elderly. Its toxicity may initially present as confusion in the elderly, but coarse tremor, ataxia, slurred speech, and impaired consciousness may also be present. It is clear that the relationship between structural renal damage (tubular atrophy, glomerular fibrosis, and interstitial fibrosis) and lithium treatment has not yet been adequately studied. While it appears that the elderly have perhaps a lower threshold for adverse drug effects or an increased sensitivity to the consequences of adverse drug effects, it is clear that elderly patients are more at risk than are younger adults of drug-drug interactions, as well as drug-disease interactions and others. This is related to the greater intake of a larger number of drugs in the management of intercurrent chronic diseases.

Psychotropic drugs are among the frequently prescribed agents that can cause clinically significant interactions with alcohol. Even mild and intermittent alcohol use can lead to interactions, which occur regardless of whether so-called "hard" liquor or wine and beer are consumed. Both the psychotropics and alcohol are potent CNS depressants, and one should expect an additive or even synergistic CNS-depressant effect when these drugs are used concurrently. There may be inhibition of the sensorium, and both central and motor functions could be depressed, manifesting as excessively confused or altered behavior. Elderly patients are particularly at risk, since they exhibit increased sensitivity to both alcohol and psychotropic drugs. As little as two drinks spaced widely apart can induce serious drug-alcohol interactions. Patients receiving any of the psychotropics should be cautioned against alcohol use. Not only would one see the expected psychomotor impairment and possible impairment of ADL (Activities of Daily Living) skills, but it is possible that extrapyramidal reactions to phenothiazines may be precipitated or exacerbated by alcohol. Enhanced CNS sedation and accidental hypothermia have also been reported as a result of an interaction between psychotropic drugs and alcohol.

Substantial public health efforts or even clinical efforts to examine alcohol use among older adults are still lacking. One suggestion is a three-pronged approach consisting of greater public education regarding the hazards of alcohol use in late life, stronger diagnostic efforts to identify the older problem drinker, and increased opportunities for treatment of the older alcoholic.

Many other interactions may be of clinical importance in geriatric medicine. Antipsychotics interfere with the access of guanethidine to its site of action, thus decreasing its effectiveness. Antacids can significantly reduce the rate and extent of transformation of these drugs to the active metabolite. Some interactions are of particular importance in elderly depressed patients with preexisting heart disease, particularly the well-publicized cardiotoxicity of the tricyclic antidepressants. More work is needed to validate data that appear to show that imipramine and doxepin, in therapeutic doses, seem to be less cardiotoxic than other antidepressants. A reappraisal of the cardiovascular risk of all antidepressants for patients with heart disease is essential.

Still another drug-disease interaction that may be clinically significant is lithium's ability to aggravate existing arrhythmias and conduction defects.

Most important for elderly patients is the summation of anticholinergic side effects of CNS drugs. Cumulation may lead not only to paralytic ileus, but also to urinary retention and consequent infection. Due to a reduction of central cholinergic nerve cell transmitters, the elderly are probably more susceptible to the central anticholinergic syndrome (atropine-like psychosis) and to cognitive impairment by additive sedative effects.

It is apparent that the wide differences among older adults in the rate of decreasing reserve capacities and increasing pathophysiology mandate a different approach to prescribing. Age-related alterations in physiology combine with disease-related changes in drug disposition and response. The effects of primary aging (physiologic decline with age), secondary aging (pathophysiological changes with age), and sociogenic aging (cumulation of losses) combine to yield an altered drug effect in the elderly. The elderly have a reduced capability to handle drugs efficiently, and there will be wide interindividual differences in the rates of development and specificity of these changes. Foremost among the explanations for these changes have been those based on altered drug effects (pharmacodynamics) and altered drug handling capabilities (pharmacokinetics) that occur with age. Pharmacodynamics are still remarkably little understood in relation to age and age effects.

Just as cellular viability decreases with age and the homeostatic mechanisms change (disturbances in the electrolyte and water balance as well as the hormonal balance), the sensitivity of various organs increases with age. This seems to be particularly true of the brain. Changes there, such as neurochemical changes in the brain and problems of energy supply in the aging brain and the cyclic AMP system, may also contribute to the increased sensitivity. It is generally accepted that older patients are more clinically sensitive to the antihypertensive and CNS depressant effect of such drugs as methyldopa. The increased risk of hemorrhagic complications attendant to the use of anticoagulants may result partially from diminished mechanical homeostatic response in the presence of degenerative vascular disease.

There is general agreement that important changes in tissue sensitivity occur with advancing age. Altered drug action may also be related to altered receptor-drug interaction. The receptor-drug interaction theory of drug action has been expanded to study drug action and has been especially useful in determining the interaction of neurotransmitter receptors and psychotropic drugs, acting either as agonists or antagonists. Receptor binding studies have also been useful in predicting drug-induced side effects and interactions. It has been postulated that a given receptor site/drug concentration produces a greater pharmacologic effect in the elderly, a theory that has as yet eluded proof, although it is supported to some degree by studies with diazepam, nitrazepam, and warfarin. The theory implies, and these studies seem also to indicate, that these drugs will yield a more intense pharmacologic action in the elderly, even when blood concentrations of the drugs are the same as in younger adults.

Apparently, beta-adrenoceptors develop a supersensitivity, while dopamine receptors diminish in number. It has also been proposed that there is a progressive decline of beta-receptor function or a progressive loss of beta-receptors and, therefore, that beta agonist effects decline with age. Thus, it appears that increasing age is associated with a decreased cardiac response to the beta-adrenoceptor agonist isoprenaline, possibly due to a reduction in the number of beta-adrenoceptors on lymphatic membranes; however, these studies need to be validated in view of claims that neither beta receptor affinity nor receptor density is altered with advancing age.

Perhaps some of the confusion stems from animal studies and reports that are apparently conflicting. For example, age-related decreases in sensitivity of animal aortae to noradrenalin have been shown in the rat and increases in the dog, but no changes have been seen in the rabbit. There is as yet no study that has indicated any change in sensitivity of human arterial muscle to noradrenalin with age. The identification of specific brain receptors for the benzodiazepines and, in rats, for imipramine and mianserin will almost certainly lead to further studies and to a better understanding of age-related changes in the action of psychoactive drugs.

A specific age-related disturbance in extrahepatic hormonal regulatory mechanisms has also been proposed. As a result, there would then be a modification in the control of circulating levels of insulin, glucagon, corticosteroids, and thyroid hormones.

Pharmacokinetics describes the rate of disposition of a drug once it has been administered. Clinical pharmacokinetics aims to produce drug plasma levels (indicative of intensity of drug action) at or slightly above the minimum effective dose but below the toxic dose.

Drug action and the desired therapeutic outcome of any treatment regimen is based on achieving a balance between drug intake and elimination. Achieving this balance will lead to a steady-state blood level, a level that for some, but by no means all, drugs has been shown to be necessary for optimizing therapeutic outcomes. However, in older people, a given maintenance dose of a drug, administered in multiple doses and often chronically, can lead to higher steady-state concentrations, due to a number of factors, all adding up, most likely, to reduced total clearance.¹ Clearly, if total clearance is reduced, and the drug is administered in the "usual" dose or according to the "usual" administration times, cumulative toxicity can result. It should be noted, though, that the mere fact that plasma concentrations in the therapeutic range have been achieved is no guarantee of a favorable outcome. One of the most common examples is that of digoxin, which can cause some elderly people to present with toxic symptoms and signs, even though blood levels are in the so-called "therapeutic" range; in others, however, apparently toxic serum levels of digoxin do not produce toxic symptomatology.

In order to elicit the desired therapeutic effect, drugs must traverse an incredibly complex route, from administration to disposition. Although laboratory studies have developed much pharmacokinetic information applicable to geriatric medicine, a number of factors usually not encountered in these studies can complicate the application of pharmacokinetics. For example, in the presence of hypoalbuminemia and reduced renal clearance, patients may be more predisposed to adverse drug effects. Reduced renal function, due to either the effects of primary or secondary aging or both, may alter pharmacokinetic indices of some drugs to a degree that would be clinically significant. Conversely, renal disease may be exacerbated by some drugs. Other drugs inherently reduce hepatic blood flow, possibly affecting the first-pass effect.

Various other, patient-related factors may also increase the difficulty of predicting the pharmacokinetic profile of a particular drug and its action in an elderly patient. Intercurrent diseases rank high among those factors, and patients with an altered thyroid function need dosage levels of digoxin different from patients with normal thyroid function. Dehydration, common among elderly persons, may lead to a smaller volume of distribution. The nutritional status of the patient can be responsible for a greatly altered drug action. In general, primary providers do not consider this a very important factor, yet drugs can adversely affect the nutritional status of a patient, perhaps already suffering from subclinical malnutrition, either directly or indirectly. In turn, nutrients have been shown to alter drug effects. Bedrest may alter the circulation and thus the disposition of drugs, and fever can slow or speed up the metabolism of certain drugs. A major factor, still insufficiently recognized, is that concurrent administration of drugs, which is the norm in elderly people with polypharmacy, can alter response to a particular drug in a clinically significant manner. The destabilization of elderly stabilized asthmatic, CHF, or diabetic patients by timolol, administered as eye drops for the management of glaucoma, is one example. The interaction of quinidine with digoxin and that of aspirin with anticoagulants provide other examples.

Further difficulties to the application of pharmacokinetics to geriatric therapy, leading to possible inappropriate use of drugs, stem from the fact that many studies published in the literature are one-point determinations, and it is likely that long-term administration of a drug may change its pharmacokinetic indices. As a matter of fact, very little is known about the effect of chronic administration of drugs. It is also often difficult to compare studies and to draw valid conclusions. Often, the study population consists of healthy, young volunteers, yet it is quite likely that a hypnotic, for example, may act differently in normal and in insomniac subjects, who would present with different sleeping patterns. Finally, age alone does not change the pharmacokinetics of all drugs, that is, the aging process does not have a uniform influence on pharmacokinetic profiles. Clearance of lidocaine, metabolized by the liver, is not altered, for instance, but ampicillin plasma clearance is reduced in the elderly and peak plasma levels are consequently raised. However, propranolol levels in older and younger people are virtually the same, if the patient is healthy. Prazepam clearance declines with increasing age in men but not in women. Nortriptyline kinetics may be disease dependent rather than age dependent; plasma clearance of this drug is slower in depressed elderly than in healthy younger patients.

¹"Clearance" is discussed more fully later in this paper.

Disregard of still another factor may well lead to inappropriate drug use. That factor is the "bioavailability" or "bioequivalence" of drug dosage forms. The intensity and duration of drug action depend primarily on the concentration of the free fraction of drug at the site of action. The rate with which this fraction reaches the site and the magnitude of concentration at the site are determined by the rate at which the active agent is liberated from the dosage form, among other things. To the practicing clinician, bioavailability or bioequivalence assumes importance when selecting a particular drug but even more importance if a change from one dosage form to another or from one product to another is undertaken. While the clinical significance of the bioinequivalence for drugs such as digoxin (a classical example), prednisone, phenytoin, and aminophylline has been documented, for others, such as chlorpromazine and lithium, it has still not been established. Recently, the term "bioavailability" has been more broadly defined to describe the systemic availability of a drug. Bioavailability is then taken to mean how much of the active ingredient of a dosage form, administered orally, will be absorbed and how much will be eliminated in the first pass through the liver.

It is clear that drug disposition changes with age. A more thorough understanding is still needed to anticipate clinically important changes in drug disposition, which would permit more effective and less toxic drug regimens for elderly patients. A more thorough understanding may also lead to fewer drug interactions. Interactions occur at the site of absorption, plasma protein binding, liver metabolism, receptor sites, and the site of elimination. It appears that the mechanisms of interaction at the receptor sites are least understood, and it is suggested that studies are needed in this area. Interactions at the site of absorption can be significant when drugs that affect the gastric emptying rate are given concurrently. A slowing of that rate may lead to increased degradation of the drug, less efficient absorption, or still other effects. Plasma protein binding site interactions are probably only of importance clinically if drugs are involved that are at least 90 percent protein bound. On the other hand, little is known about interactions at the site of metabolism. It is known, though, that interactions at the site of excretion can be clinically important, since they may lead to changed rates of reabsorption and/or elimination. Despite all of these difficulties, pharmacokinetics and its clinical application to geriatric medicine promises the most effective means currently available to minimize inappropriate drug use by optimizing the therapeutic effects and minimizing the toxic effects of most drugs.

Clinically, the most relevant pharmacokinetic change with age is impaired elimination of drugs because of diminished renal function or hepatic metabolism (total clearance). There is still insufficient evidence to draw any general conclusion about the effect of aging on the volume of distribution. To sum up, the changes that are likely to affect drug action with age are reduction in total clearance, prolongation of elimination half-life, occasional increases in free-fraction drug levels due to hypoalbuminemia, inconsistent changes in the volume of distribution, and decreased renal clearance.

Two cautions need to be added. First is the overreliance on plasma steady-state concentrations. These usually are reported in the literature in terms of total drug (bound and unbound). But it is the free fraction of the drug that is responsible for the drug's action. If the dosage schedule as well as the clearance remains the same, the steady-state concentration of the total drug will decrease with an increase in free fraction, whereas the steady-state concentration of free drug and the pharmacologic effect will remain the same. Second, an overreliance on plasma half-life can lead to misprescribing. Quite often, the plasma half-life is used as an indicator to predict drug action and dosage needed. Often, though, the plasma half-life is not necessarily indicative of total clearance, as other factors may enter, such as protein (albumin) binding or the volume of distribution. For example, the plasma half-life of minoxidil, an antihypertensive agent, is 4.2 hours, yet the drug's antihypertensive effect lasts 3 to 4 days. It is likely that the drug binds to vascular smooth muscle and, thus, its action is prolonged much beyond the time that would be predicted by application of the plasma half-life. The plasma half-life of diazepam and that of lidocaine are prolonged in the elderly. One would assume, therefore, the need for a dosage reduction. However, in the elderly the volume of distribution of these two drugs is also increased, leading to an unaltered plasma clearance. While the pharmacokinetics of diazepam would then not necessarily mandate a dose reduction, the increased receptor-site sensitivity to this drug in the elderly would seem to make it necessary. When a prolongation of half-life is not accompanied by other changes, then a change in dose ought to be undertaken.

It is readily apparent that knowledge of only one pharmacokinetic parameter, such as half-life, does not by itself help to reduce misuse of drugs. The problem is exacerbated by the fact that the interaction between age-related alterations in drug disposition and drug action with disease-related alterations are still not sufficiently known or appreciated. Drugs, unlike nutrients, are

absorbed mostly by passive diffusion. One would not, therefore, expect age-related differences in the absorptive processes in elderly patients. Indeed, no clinically significant changes have yet been documented. The rate, but not the extent, of absorption appears to be diminished in some instances, but in the chronic administration of drugs, this would not be clinically significant. There are, however, other factors, indirectly related to the aging process, that may influence absorption of drugs in the elderly. Elderly persons, suffering from a diminished thirst mechanism and, often, from incontinence, are likely to drink far less fluid than younger adults. Poorly water-soluble drugs, such as amoxycillin, are absorbed to a greater extent when swallowed with large volumes (240 ml) of fluid than with small volumes (25 ml).

The elderly are also likely to change their dietary patterns. It is then important to learn about their dietary intake. High-carbohydrate or high-protein meals, for example, interfere with the absorption of lipophilic drugs. There are also a few drugs that are absorbed by an active process, such as vitamins and drugs related to the steroids, amino acids, or pyrimidines. Levodopa, for example, is absorbed by a transport system for amino acids, and concurrent intake of high-protein food will cause competition for this transport system, reducing levodopa uptake. There has also been postulated an age-related decrease in the activity of dopa decarboxylase in the gastric mucosa, which can lead to an enhancement of systemic availability of levodopa, leading to much higher plasma levels of the drug in elderly persons per given dose. Recently, a definite age-related change in gastric emptying has been demonstrated. Since a desired steady-state concentration depends on a balance between absorption and disposition on one hand, and elimination on the other, delay in the absorption may make it impossible to reach the desired steady-state concentration. A delay in gastric emptying would also increase the time a drug would reside in the stomach. Drugs that are susceptible to degradation in the stomach, such as penicillin, would then be exposed to that process for a prolonged period of time, making less of the active drug available. Disease factors, prevalent in older age, also may affect the absorptive process. Congestive heart failure delays absorption of the thiazides, quinidine, and digoxin. Although this is not clinically significant by itself, it may become so if the patient has also received an anticholinergic drug, which further delays gastric emptying.

Anticholinergic drugs and their effect on gastric emptying may interfere with the absorption of other drugs in still another manner. Some drugs exhibit a strong affinity to the intestinal metabolizing systems. When the transit time of these drugs is delayed, then more extensive metabolism than expected can result, leading to a lesser effect of the drug. It should also come as no great surprise that a great number of drug interactions probably occur simply because the elderly so frequently take multiple medicines. Interactions of these medications could form insoluble complexes or large molecules that cannot pass the gastrointestinal membrane, thus decreasing both rate and extent of absorption. Blood flow to and through various organs changes with age. Cardiac output decreases. The decreased volume is further redistributed. Of the lesser volume, even less is diverted to the kidneys (the major organ of excretion) and the liver (the major organ of metabolism). With age, then, less blood reaches either of these two organs, and, therefore, less of the active ingredient of a given drug dose will be distributed to those two organs. This then becomes a rate-limiting factor in the metabolism and excretion of drugs and can lead to cumulative toxicity if dosages are not adjusted when necessary. It has also been suggested that with age more of the cardiac output is diverted to the brain (as well as to the heart and the muscles). If this is true, the increased volume of blood to the brain could result in higher concentrations of certain CNS drugs (aspirin, for example) and thereby alter the effects of these drugs on the CNS.

Body composition also changes with age. Total body water decreases with age, both as a percentage of total body weight and in absolute terms. It declines by approximately 10 to 15 percent and can lead to a smaller volume of distribution of water soluble drugs and a higher concentration of drug per unit volume if the dosage is not adjusted appropriately. There is also a decline in muscle and lean body mass with age. More importantly, the ratio of lean body mass (metabolic tissue) to lipid tissue (nonmetabolic tissue) changes with age, even if there is no overall weight change. Elderly males have about twice the amount of fat (approximately 35 percent of total body weight) as have younger males, while elderly females (48 percent of total body weight) register an increase of about 1.5 times over their younger counterparts. (Incidentally, this difference in fatty tissue between males and females may be partly responsible for some differences in drug action observed with gender.)

These changes in body composition can lead to important differences in the distribution of water-soluble and lipid-soluble drugs. Drugs distributed primarily in lean body mass or body water will yield higher blood levels if their dose remains unchanged. For lipid-soluble drugs, there

will be a smaller fraction of the total amount of drug present in plasma. Many psychoactive drugs and all narcotic analgesics are lipid soluble, favoring their accumulation in the brain and other lipid tissues. A change in the ratio of lean body weight to lipid tissue would provide a greater reservoir of lipid tissue into which they would be distributed. Consequently, blood concentration may be decreased at any given total body weight. This is particularly true of drugs that are highly protein bound. In the case of these drugs, it is important to study various methods that may lead to better penetration of the blood-brain barrier. This would lead to higher brain concentrations and permit lower doses and, presumably, lead to lesser toxicities. Similar reasoning led to the development of the levodopa-carbidopa combination, which exhibits fewer side effects than does levodopa alone.

The binding of drugs in blood and tissues to biological macromolecules primarily determines the in vivo distribution of drugs. Tissue binding and its possible age-related alteration has received relatively little attention so far. There are some indications, though, that membrane phospholipids participate in binding of basic lipophilic drugs. Much more is known about binding of drugs to albumin. Only the unbound fraction of a drug can cross biological membranes to sites of pharmacologic activity. Plasma albumin levels are generally lower in the elderly, particularly those who are malnourished and those with longstanding illnesses. Perhaps there is also a change in the qualitative binding of drugs to albumin. As albumin levels decrease, one would predict that highly bound drugs would be eliminated faster. This may not necessarily be true, though, and both reduced and unchanged elimination rates have been documented. Nevertheless, a number of adverse drug reactions have been linked to reduced albumin levels.

Liver disease and serious kidney disease can also impair protein binding of drugs. Changes in albumin levels will most often affect weakly acidic drugs, which are generally highly bound to plasma albumin. Basic drugs, such as quinidine, exhibit an affinity for albumin as well as for lipoproteins and alpha₂-glycoprotein. The latter protein increases in certain stress diseases, such as inflammations. Diseases involving alkalosis or acidosis may also influence protein binding. Weak acids and weak bases can undergo changes in free fraction with changing pH. Therefore, one should expect a possible alteration in the duration and intensity of action of a wide variety of drugs when those conditions exist. There is the possibility of increased toxicity in patients with low albumin levels due to higher circulating levels of unbound benzodiazepines. Many drug interactions are based on the displacement of one drug by another, more avidly albumin-bound drug. Elderly patients are more at risk of this type of interaction than are younger patients, due to the elderly's lower albumin concentrations and the higher number of drugs being prescribed for them. Markedly higher free fractions of phenylbutazone, salicylate, or sulfadiazine have been reported in elderly patients, correlated with the number of drugs being taken simultaneously.

It is not easy to apply these principles to the prescribing process. For example, albumin binding of phenytoin is decreased in elderly patients, leading to an increase in the free fraction of the drug. A more rapid plasma clearance and a shorter plasma half-life result. If an elderly patient on phenytoin now receives salicylates, serum phenytoin levels may decrease, but the free fraction of phenytoin may actually increase slightly. Based on the decline in serum levels (total drug), the phenytoin dose may be increased. But since it is the free fraction that is responsible for the drug's action, it is apparent that no increase in dose is necessary. Indeed, it may be undesirable.

"Clearance" describes the body's capacity to eliminate a drug. It is an index of the total volume of blood from which a drug is completely removed per unit of time. Total clearance is inversely related to steady-state plasma concentration. It is readily apparent, then, that a reduction in clearance would lead to an increased steady-state concentration and, possibly, to toxicity. The liver is the main organ of metabolism, also called detoxification or biotransformation. Drugs are changed in the liver to active or inactive metabolites and are changed chemically to water-soluble products capable of being excreted. Age changes in hepatic metabolism are highly variable and unpredictable. Phase I (synthetic) metabolism, mainly oxidation, appears to be most affected by age-related changes, leading to reduced hepatic drug clearance. The metabolism of drugs undergoing liver microsomal enzyme metabolism is less efficient in the elderly. Protein deficiency, not infrequent among elderly persons, also decreases cytochrome P-450 activity.

Although the oxidative metabolic pathway has been studied extensively, it is still not known whether the well-known induction effect of phenobarbital is unaffected or affected by age. More importantly, the aging effect on Phase II (synthetic) metabolism is not known. The aging effect on various conjugative pathways has not yet been sufficiently studied. Very little is known

about the glutathione, glucuronide, or sulfation pathways. It is suggested that fresh hepatocytes or hepatocyte cultures should be used to study conjugation effects with age, and to separate the effects of age on the different conjugation pathways. Studies would then more clearly define the metabolism of such drugs as diazepam and oxazepam. Patients over the age of 65 generally exhibit higher plasma concentrations for imipramine, desipramine, and amitriptyline. This is presumed to result from a decreased metabolism of some tricyclics in the elderly.

All narcotic analgesics are metabolized by the liver. In older adults, a decreased liver function may result in cumulation of these drugs and toxicity, unless there is a reduction in dose. Slower hepatic metabolism may delay the appearance of the active metabolites of such drugs as chlorthalidazepoxide, diazepam, and clorazepate. Elimination may also be impaired, leading to cumulation of both the parent compound and the metabolite. On the other hand, intermediate and short-acting benzodiazepines, such as lorazepam and oxazepam, do not produce active metabolites, and rapid metabolism makes these drugs unsuitable for once-daily administration. Age-related effects on liver metabolism have been difficult to document in patients for a number of reasons. First, a large number of drugs and other substances are known to stimulate liver metabolism. (Phenobarbital is the classic example.) As the elderly receive many drugs, one would possibly expect this effect. However, an equal number of drugs decrease their own or other drug's metabolism, and effects may well offset each other. Moreover, hepatic clearance is also affected by smoking, the patient's gender, and still other factors. Finally, for reasons still somewhat unclear, age-related effects of biotransformation can be different for compounds that are very similar.

In patients being dosed chronically, microsomal oxidation appears to be impaired for some drugs, such as amitriptyline, imipramine, and phenytoin. With time, then, the drug would accumulate, possibly to toxic levels. Liver metabolism is also susceptible to influence by diseases. Hyperthyroidism increases the rate of metabolism of some drugs, among them propranolol. Following correction of the hyperthyroid state, there may then be a significant increase in plasma propranolol levels, unless the dosage of the drug is adjusted.

Both hepatic function and hepatic blood flow decrease with age. These functional changes are probably most significant for drugs with a high first-pass extraction ratio. Drugs, after absorption but before delivery to the systemic system, pass through the hepatic portal vein to the liver. There, part of the drug will be metabolized before reaching the systemic circulation. This is an enzyme-mediated process, one thought to be saturable. If a drug enters the liver quickly, the system may well be saturated, permitting more of the unmetabolized drug to reach the general circulation. The threshold for maximum hepatic extraction may be age related. A reduced threshold could result in saturation of the extraction process at lower doses. The first-pass effect can be influenced by other drugs or foods. Reduced presystemic hepatic elimination, for example, can be expected when food increases the bioavailability of propranolol. Clearly, the first-pass effect can significantly influence the fraction of the drug dose that reaches the general circulation. The product of liver blood flow and liver extraction ratio is called hepatic clearance.

In the elderly hepatic blood flow is reduced. Some drugs, such as propranolol, decrease that flow further, limiting the amount of drug that would undergo first-pass metabolism. Furthermore, in the elderly normal age-related changes in hepatic clearance may be overshadowed by the effects of simultaneously administered drugs on drug metabolism and hepatic blood flow. For example, cimetidine is thought to reduce hepatic blood flow and thus reduce clearance of propranolol. The interaction between antipsychotics and antidepressants involves competition for the cytochrome P-450 enzyme system, which metabolizes both compounds. It would then be reasonable to expect competitive enzyme inhibition of one of the compounds (in this case probably the tricyclic) and higher blood levels of that compound. Preportal and presystemic metabolism may be important both in reducing the clinical effect of some drugs and in producing toxicity. The gut is particularly important in extrahepatic metabolism, since drugs (as already pointed out) may be exposed to the action of enzymes located in the intestinal mucosa during the absorptive process. All drugs that undergo sulfate conjugation may be susceptible to this type of metabolism. If there is a strong affinity between the drug and the intestinal metabolizing enzymes, then extensive metabolism can result during the intestinal first pass. Many drugs may be so affected, including alprenolol, aspirin, hydralazine, isoniazid, nortriptyline, and propranolol.

There is an age-related decline in renal plasma flow. The glomerular filtration rate declines considerably, and so does tubular secretion. The active tubular secretion of certain drugs declines with age, as does the ratio between drug clearance and creatinine clearance. For example, the tubular secretion of procainamide declines with age. This, in combination with the decline in

the glomerular filtration rate, leads to marked cumulation of the drug in the elderly, represented by high serum concentrations. Clearance of drugs that are eliminated unaltered by the kidneys is reduced. Based on reduced kidney function and reduced blood flow to the kidneys, the clinician should expect toxic accumulation of drugs excreted by the kidneys, unless the dose is appropriately adjusted.

Many disease factors contribute to renal impairment in the elderly. Care should be exercised by the clinician, particularly when the elderly patient suffers from several disease states or is given several drugs simultaneously. Dehydration, congestive heart failure, hypotension, and urinary retention, as well as diabetes, nephropathy, and pyelonephritis all can modify renal function and renal handling of drugs. The declining renal function is probably the most frequently overlooked factor responsible for adverse drug effects in the elderly. One important reason for continuing reports on toxicity of drugs excreted unaltered by the kidneys is the still-prevailing lack of understanding of how to select the correct procedure to establish a patient's renal status. Neither a BUN (Blood Urea Nitrogen) nor serum creatinine will necessarily be representative of an elderly patient's renal function. The BUN is not a good measure of the glomerular filtration rate. Furthermore, endogenous creatinine production decreases in the elderly. Therefore, renal function may decline without a change in serum creatinine. On the other hand, creatinine clearance declines significantly with filtration rate. Therefore, creatinine clearance, rather than serum creatinine, should be used to determine an elderly patient's renal status. Several methods have been recommended to calculate creatinine clearance, based on a determination of serum creatinine. Any drug whose total clearance is determined by renal excretion of the unchanged molecule may be cleared at a much reduced rate in elderly patients and will tend to accumulate. Drug dosage should either be reduced or the interval extension method should be applied.

It is most important to point out that therapeutic blood levels have been established for only a few drugs. In any case, drug monitoring should never replace but should only complement clinical observation and judgment. Even if drug levels are established, the clinician must recognize that for many drugs, levels may vary tenfold or more in patients receiving the same dose. Furthermore, plasma levels of the total drug (bound and unbound) may not be significantly higher based on a determination, but unbound levels may be.

Cadwallader, D.E. Drug interactions in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 80-93.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	6

PURPOSE

The need for therapy using multiple drugs increases with age. The ingestion of numerous drugs, coupled with the possible decrease in physiological capabilities, makes the elderly particularly susceptible to adverse drug reactions and drug interactions.

This paper examines the basic problems, principles, and mechanisms of drug-drug interactions, which are defined as occurring when the effects of one drug are modified by the prior or simultaneous administration of another drug. In such interactions, the effect of a drug vital to the patient's therapy may be decreased or increased by another drug.

SUMMARY

Among reasons for the increased evidence of drug interactions are the potency and powerful side effects of many drugs used today, the multiple-drug use among older patients, the concurrent use of several physicians who may be unaware of drug prescriptions from other physicians, improved understanding of drug actions, and better reporting of adverse reactions.

Drug interactions may occur during absorption and transport. For example, kaolin pectin mixture (Kaopectate) interferes with the absorption of lincomycin (Lincocin) because a large portion of the antibiotic is absorbed on the kaolin and not into the bloodstream. Furthermore, during transport, when salicylates are taken at the same time as coumarin-type anticoagulants, the strong binding of the salicylates on protein binding sites in the blood plasma, which distributes the drugs, results in high blood levels of anticoagulants, which may lead to hemorrhage.

Drug interactions may also occur by accelerated metabolism. Drugs that enhance metabolism include the sedative-hypnotics, tranquilizers, analgesics, antihistamines, and oral antidiabetic agents. This increased metabolism shortens the duration of action for subsequent drugs administered, thus requiring larger-than-usual dosages to obtain the desired pharmacological response. However, clinically dangerous situations can occur if dosages are adjusted without constant supervision.

Conversely, an example of the inhibition of metabolism is bishydroxycoumarin's potential inhibition of the metabolism of tolbutamide, with potential lowering of blood sugar to dangerous levels. Furthermore, at the receptor site, amphetamines and tricyclic antidepressant drugs can interfere with the action of guanethidine, an antihypertensive drug, resulting in an increase in blood pressure. In addition, renal function and urinary acidity are important when considering drug interactions, in that drugs taken for urinary tract infections are most effective when the urine is acidic. Patients taking methenamine, tetracyclines, and nitrofurantoin for urinary tract infections should be encouraged to drink plenty of acidic fluids. In addition, adverse drug reactions occur more often in patients with reduced renal function; thus, the doses of drugs such as digitalis and gentamycin should be adjusted downward in patients with reduced renal function. Competition among drugs for specialized excretion sites in the kidneys may also result in toxicity.

Other types of drug interactions to be aware of include the additive or synergistic effects of agents with similar pharmacologic actions or side effects. For example, central nervous system (CNS) depressants have additive or synergistic effects. Drug-drug interactions can occur when CNS depressants are ingested along with alcoholic beverages.

CONCLUSIONS

To minimize the likelihood and danger of drug-drug interactions, professionals should always keep the possibility of such an occurrence in mind when dealing with an elderly patient who is likely to be taking more than one drug. This is especially important with patients being treated for hypertension or cardiovascular conditions or those who have liver and renal diseases. Detailed records of the patient's medical history and all prescription and nonprescription drugs taken should be maintained by physicians, pharmacies, nursing homes, and other extended-care facilities. Practitioners should also watch carefully for unusual changes in the condition or behavior of patients taking more than one drug, patients switched from one drug to another, or patients taken off one or more drugs and maintained on others.

DRUG	Alcohol; prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Alcohol users
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	heoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	13

PURPOSE

Physicians must be especially aware of drug effects and drug interactions in the elderly because the aged constitute a disproportionate share of the physician's caseload. Alcohol, which is taken without prescription and often without the physician's knowledge, can interfere with drug treatment, and thus its use by the patient should be ascertained.

This paper describes the effects on drug actions of the physiological changes associated with aging, discusses the interactions of alcohol and drugs, and explores the issue of alcoholism in the aged.

SUMMARY

Among physiological changes in the elderly are the wasting of muscle tissue, decreased cardiac output and cardiac work, and the decreased effectiveness of the sympathetic cardiovascular system. Other changes include decreased lung and kidney function and reduced brain weight. Changed sleep patterns can lead to overprescription and self-overdosage of sedatives and hypnotics.

Alcohol is one of many drugs that increase the risk of dangerous falls associated with orthostatic hypotension. Further, alcohol specifically modifies the effect of drugs, but physicians often overlook this interaction. Even in active alcoholics, tolerance to alcohol decreases with increasing age, and liver function may also be compromised. Physicians should be aware of how much the patient drinks and urge caution in drinking, especially when a drug likely to interact with alcohol is prescribed. For example, the stomach irritation caused by both alcohol and aspirin combined with aspirin's interference with clotting factors may cause serious hemorrhage. Alcohol also interacts to reduce or increase the absorption of various antibiotics, and alcohol's solvent action may hasten the absorption of other medications as well. Physicians should also be aware of the alcohol content of tinctures, medications such as Geritol, and liquid cough medications. Phenylbutazone and ethacrynic acid both interfere with the action of alcohol dehydrogenase; thus, unpleasant physical effects can occur in patients taking tolbutamide (Orinase), phentolamine, chloramphenicol, and other drugs.

When mixed with alcohol, sedatives and hypnotics have at least an additive and often a synergistic effect. Elderly persons could die from lower combined doses of alcohol and these drugs than would be fatal to younger persons. Elderly patients taking digitalis should also be aware that ingesting large quantities of alcohol will decrease potassium levels in the blood and increase cardiac arrhythmias. Alcohol also can produce high uric acid levels. In diabetics who are dependent on insulin, high alcohol intake may induce hypoglycemia.

Tricyclic antidepressants are contraindicated in those who use alcohol because the combination of these drugs can decrease central nervous system activity and sometimes can even induce hypothermic coma. Antihistamines combined with alcohol decrease motor coordination and driving performance, a reaction that is enhanced in the aged. High consumption of alcohol may speed metabolism of other drugs, such as meprobamate, requiring higher dosages than usual.

Despite these problems, nursing homes have found that allowing patients to have small to moderate amounts of mild alcoholic beverages before the evening meal has proved surprisingly successful. Such experiments have shown that patients' sleep, morale, and well-being improved, making it possible to reduce other medications. The patients must be thoroughly screened, however, to avoid the possibility that they might be alcoholics or alcohol abusers.

Many elderly persons have serious drinking problems. Bloise's (1978) studies have shown that the incidence of alcoholism in nursing homes is as high as 40 to 60 percent, while Glatt (1978) has shown that the proportion of women is higher in alcoholic populations over age 60 than in younger alcoholic populations. Binge drinking and facilitative drinking are more characteristic of the elderly than is long-term addiction with withdrawal states and tolerance. Many older people experience the onset of drinking problems after retirement or loss of a significant person in their lives. Careful questioning after gaining the patient's confidence is needed to determine the nature and duration of the drinking problem.

Effective treatment of alcoholism in the older person may center around social problems rather than the detoxification and extensive medical care often used to treat earlier onset of alcoholism. Environmental manipulation, social intervention by good neighbors, social hours in nursing homes, and, at times, antidepressant medication have been helpful measures. Therapists should try to help elderly alcoholics to find alternative ways of gaining enjoyment from their remaining years.

CONCLUSIONS

Alcohol interacts with a large number of drugs commonly taken by the elderly. Proper care of elderly patients requires an awareness of their alcohol intake and its implications. Such knowledge may modify drug prescriptions, help prevent dangerous dosages, assist in making other diagnoses, and prevent incidents such as synergistic drug reactions and falls and fractures, which may lead to untimely and preventable death. Professionals should try to determine the social problems associated with the consumption of alcohol, because these problems can be a source of unforeseen hazards in therapy.

Ziance, R.J. Side effects of drugs in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 53-79.

DRUG	Drugs acting on the central nervous system; cardiovascular drugs; nonprescription analgesics
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	140

PURPOSE

The greater incidence of adverse side effects from drugs in the elderly can be partially attributed to several age-related physiological alterations that may influence the life cycle of the drug and host sensitivity, and thus the action of the drugs. Older persons have reduced ability to absorb substances through the stomach and intestines, to transport drugs across biological membranes, to metabolize drugs via liver enzymes, and to eliminate them through the kidneys. Drug doses in the elderly must thus be either increased or decreased, depending on the absorption, metabolism, and elimination patterns of the drug in a particular aging individual.

Age modifications of drug activity are most common to drugs that act on the central nervous system (CNS). The normal interaction and balance among various brain regions is altered by the aging process, resulting in deterioration of integrated brain function. Older individuals may thus suffer serious reactions to certain drugs and may be unreliable in administering their own medications. The present study summarizes the effects of CNS-acting drugs, cardiovascular drugs, and nonprescription analgesic drugs.

SUMMARY

CNS-acting drugs. The antiparkinson drugs L-dopa and L-3,4-dihydroxyphenylalanine are used to treat the brain dopamine deficit underlying Parkinson's disease. The disease causes tremors, rigidity of skeletal muscles, and/or akinesia. The age of the patient at the time therapy is initiated is important, since younger patients exhibit a more satisfactory response than older patients. Side effects of L-dopa therapy include dyskinesia, nausea, vomiting, abnormal heart beat, hypotension, and psychiatric disturbances. All elderly patients appear to experience at least one adverse side effect. It has been reported that L-dopa-induced dyskinesia can be completely eliminated through daily treatment with deanol.

The phenothiazines exhibit differences in their antipsychotic potency and propensity to produce certain side effects. Although large doses of phenothiazines are effective in younger people, they are no more beneficial than smaller doses for the elderly. The aging process results in increased sensitivity to the therapeutic and toxic effects of phenothiazines. Side effects common among the elderly are mood depression, excessive sedation, toxic confusional reactions, hypotension, fainting, blood disorders, sensitivity to light, parkinsonlike symptoms, and dyskinesia. Akathisia (inability to sit still) is a predominant side effect in elderly women. Hypotension is the most serious side effect, and dyskinesia may remain for years after discontinuation of the drug. Jaundice, skin scaling, corneal defects, and increased cataract formation are also not unusual among older persons as a result of long-term phenothiazine therapy.

Benzodiazepines are useful in alleviating symptoms of anxiety, in calming agitation, and in treating withdrawal states from alcohol. Diazepam, for example, may serve as a muscle relaxant. Common side effects include impaired memory, poor coordination, skeletal muscle weakness, and disinhibition. CNS depression and drowsiness are especially common in advanced age and are compounded when certain benzodiazepines are administered. Excessively large doses of these compounds may be a deterrent to the geriatric patients who desire to maintain an independent residence in the community.

Tricyclic antidepressants are widely used for the treatment of depression. Side effects in elderly patients may include mental confusion, glaucoma, delayed urination, constipation, decreased gastrointestinal movement, dry mouth, parkinsonlike symptoms, and cardiovascular abnormalities. It has been recommended that the elderly receive less than an entire daily dose of these drugs at bedtime since increased blood level of the drug may be poorly tolerated in the elderly.

Antimanic drugs, such as lithium carbonate, are useful in the treatment of both phases of manic depression. Lithium should be used cautiously in patients over 60 years of age since the ability of an individual to excrete lithium decreases with age so that the half-life of lithium is significantly prolonged in the elderly. Dosages should be increased at a less rapid rate and serum lithium monitored more frequently in the elderly than in younger patients. Symptoms of lithium toxicity include faintness, lethargy, sweating, and pale, waxy skin; followed by a comatose state, possibly of several days duration, during which tremors and contraction of skeletal muscles occur.

Psychoactive drugs may modify mental symptoms, but they may also exacerbate or even cause CNS symptoms. Deterioration of nursing home patients is often associated with an increase in dosage and variety of drugs administered.

Cardiovascular drugs. There is a significant reduction of renal blood flow, renal function, and cardiac output in elderly men and women. These alterations are accompanied by arterial wall calcification and increased vascular resistance. Diuretics are particularly useful in decreasing elevated blood pressure. However, diuretic therapy in older persons should be initiated at half the usual dosage to avoid excessive sodium and potassium depletion. Side effects of diuretics include hypotension, weakness, inflammation of the pancreas and skin, gastrointestinal irritation, reduced blood potassium, and blood disorders. Elderly patients may require a potassium supplement when taking diuretics.

Reserpine is not particularly effective in elderly patients because of side effects such as depression. Clonidine may cause impotence, drowsiness, withdrawal at cessation, and severe interactive responses when used with tricyclic antidepressants. Guanethidine should be avoided in elderly patients because of hypotensive episodes upon standing, diarrhea, weakness, and decreased heart rate.

Cardiac glycosides such as digitalis may actually aggravate the congestive heart failure for which they are administered. Therefore, elderly patients receiving digitalis require careful supervision, including electrocardiographs. A high correlation exists among hypokalemia, ischemic heart disease, and susceptibility to the toxic effects of digitalis. Toxicity produces loss of appetite, nausea, vomiting, diarrhea, cardiac arrhythmias, decreased heart rate, and ocular effects.

Nonprescription analgesics. Aspirin is consumed in large quantities in the United States, especially by older people, who generally consider it a harmless drug. However, possible side effects of use include allergic reactions, asthma, increased bleeding time, gastrointestinal symptoms, CNS effects such as confusion and deafness, and renal and liver damage. Elderly persons should be encouraged to take aspirin with food and to supplement their diets with iron. A serious side effect in the elderly is cardiovascular shock characterized by hypotension when aspirin is given to patients afflicted with gram-negative infections.

CONCLUSIONS

The geriatric population can be treated successfully with most drugs, but such therapy requires alteration and individualization of drug dosages to reduce deleterious side effects. Although predisposed to drug-induced side effects, the elderly can be assisted in dealing with this problem through increased involvement of medical personnel and family members. Elderly patients should also be presented with appropriate information on the disease process and drugs prescribed for treatment.

Weg, R.B. Drug interaction with the changing physiology of the aged: Practice and potential. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 103-142.

DRUG	Multidrug
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	90

PURPOSE

The myths related to aging accumulated over the last 50 to 75 years have created the stereotypic specter of the aged as invalid, irascible, mentally deficient, unloved and unloving, and an economic and emotional burden on the young and middle-aged. The patient load of older persons continues to grow, and the reality of significant differences in presenting symptoms of older persons as compared with the young demands new information and attitudes. However, relatively little attention is devoted to geriatric research, particularly that involving drug use patterns and effects on the elderly, although the elderly purchase and use more drugs than any single group in the population. While people live longer because medicines have reduced the danger of infections, little has been done to halt degenerative diseases.

The older population is clearly in need of alleviation of suffering, but the mechanisms of drug action in the elderly remain poorly understood. The present study reviews changes from aging and their effects on positive and negative drug use by the elderly.

SUMMARY

A wide variety of physiological changes during the aging process affect the efficacy and safety of drugs. In general, the functional capacity of cells, tissues, organs, and systems declines steadily. The integrative function of the nervous system, muscle tone, and long bone density are all reduced. Malnutrition may result from tooth loss, diminution of the senses, decreased digestive juices, and constipation. The breathing mechanisms also operate with less efficiency. The old experience difficulties in responding to stress, adjusting to change, and returning to equilibrium. Cardiac output and stroke volume drop, and renal blood flow, glomerular filtration, and tubular excretion rates decrease gradually. Gonadal hormones, serum growth hormone, and insulin are secreted in smaller amounts, and corticoid hormonal disposal and adrenal sensitivity to ACTH (the trophic hormone of the anterior pituitary) are reduced. The immune response, which is linked with such diseases as diabetes and cancer, diminishes. Molecules, cells, and noncellular connective tissue all change, reducing repair rates and causing chromosomal errors.

A careful review of nutrition in the later years emphasizes the marginal nutritional status of many older persons. Large numbers of older people display deficiencies in such micronutrients as calcium, iron, vitamin A, thiamin, riboflavin, niacin, and vitamin C. Many drugs may displace nutrients from their traditional binding sites or combine with nutrients, or both, leading to nausea, vomiting, anorexia, and similar conditions. Vitamin B levels are affected by hypoglycemic drugs, hydralazine, digitalis, and aspirin; vitamin C, by alcohol and aspirin; and fat-soluble vitamins A, D, and K, by mineral oil and neomycin. Diuretic therapy may cause magnesium deficiency and hypokalemia. Intestinal absorption of fluoride and phosphorous is inhibited by antacids containing aluminum. Antibiotics decrease calcium, magnesium, and potassium utilization, and glucocorticoids lower serum calcium.

Substances in food may also interact with drugs. For example, a hypertensive crisis can result from intake of tyramine-containing foods such as cheddar cheese by individuals on monoamine oxidase therapy, and food containing calcium, magnesium, iron, or aluminum salts may impair intestinal absorption of tetracyclines. Nutritional status and the kinds of foods ingested at one time represent two additional variables that affect drug action. Education on the relationship of drug use to nutrition is necessary for both health professionals and the public.

The action mechanisms of drugs are also affected by aging factors. Drug absorption is significantly reduced because of decreases in the number of absorbing cells. Detoxification and excretion of drugs slow with age, perhaps because of reductions in renal capacity.

In general, drugs may be more active in older people even at reduced dosage levels. Particular drugs may represent special dangers for the elderly. These include thioridazine, a tranquilizer; d-amphetamine, a stimulant; thiazide diuretics; tranquilizers such as chlorpromazine; monoamine oxidase inhibitors; phenylbutazone; hypnotics and barbiturates; anticoagulants; digitalis; and corticosteroids. Despite heightened awareness of drug toxicity, health care personnel in nursing homes frequently fail to heed information about drug action and the physiology of the aged or even to administer prescriptions according to prescribed dosages.

Conversely, drugs may also serve a positive function in the aging process. Much research has focused on the attempt at chemical interference to retard the aging process or to modify specific biological functions that contribute to aging. Tissue culture studies suggest that cortisone may extend the normal life span of healthy mammalian cells. Peroxidation of lipid oxidants may alter mitochondrial membranes, labilize lysosomes, and contribute to lipofuscin (age pigment) accumulation, thus slowing age-associated deterioration. A number of drugs, including prednisolone, have been tested as means of halting deterioration of the immune system. Whole posterior pituitary extract appears to reduce mortality in rats by improving hormonal regulation of the electrolyte balance. Gerovital H₃ has been found effective in treatment of depression among the aged, but does not appear to benefit senile patients or those with arteriosclerotic degenerative diseases. Studies of learning-enhancing agents have produced suggestive but equivocal data. Most of the drugs, including Mg pemoline, 5,5-diphenylhydantoin, procaine amide, yeast RNA, ribaminol, inosine, and alkylaminoalcohol complexes, appear to stimulate neural protein synthesis.

CONCLUSIONS

Findings establish that certain types of drugs, nutritional deficiencies, and drug-drug as well as drug-diet interactions can undermine the health of persons whose function has been altered by the process of aging. Research on drugs to retard the aging process is in progress but remains inconclusive. Evidence suggests, however, that vigor can be extended into old age with attention to the physiology of aging, nutritional status, and drug use. Also important to good health during advancing age are maintenance of a useful role in society and a positive view toward life, appropriate treatment when needed, limitation of drug use and simplification of instructions for drug use, treatment of principal diseases first, and individualized dosage adjustment as well as attention to mental health and social circumstances of the older person. Better education of older persons concerning drug safety is imperative.

Friedel, R.O. Pharmacokinetics of psychotherapeutic agents in aged patients. In: Eisdorfer, C., and Friedel, R.O., eds. Cognitive and Emotional Disturbance in the Elderly. Chicago: Year Book Medical Publishers, 1977.

DRUG	Prescription psychotherapeutic drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Patients
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	34

PURPOSE

The treatment of the elderly patient with senile dementia or other mental disorders frequently involves the use of a variety of medications. However, the use of pharmacological agents in treating older patients presents special problems, since the aged typically show greater variation than the young, due to age-dependent changes in tissue sensitivity as well as in the absorption, distribution, metabolism, and excretion of the drugs. In patients receiving identical doses of psychotherapeutic agents, the differences in plasma concentrations are considerable, often greater than twentyfold at the two extremes. These variations are caused by alterations in the pharmacokinetic processes of the elderly.

The present report outlines the effects of absorption, distribution, metabolism, and excretion on the concentration of drugs in the blood of the elderly.

SUMMARY

The absorption of drugs is defined in terms of bioavailability; that is, the amount of drug that reaches the general circulation and the rate at which it does so. Absorption is dependent on the lipid solubility and degree of ionization of the drugs and on the pH of the medium. Other factors affecting absorption are route of administration, stomach contents, and the degree of gut and liver metabolism. Alterations in liver blood flow and the liver's ability to metabolize the drug may result in marked changes in bioavailability. Theoretically, all of these factors may be associated with age-related changes in drug absorption, but such changes must be verified. Absorption of orally administered diazepam and chlordiazepoxide is decreased in the elderly, but this is not necessarily the case for all psychotherapeutic agents.

The second factor affecting drug blood levels is distribution, quantitatively expressed as apparent volume of distribution. Most psychotherapeutic agents are not distributed homogeneously throughout the body but are selectively concentrated in tissues such as brain, liver, red blood cells, and fat. Since most psychotherapeutic agents are lipid-soluble, they have a significant affinity for fat tissue. With aging, the adipose tissue-lean tissue ratio typically increases, and therefore the volume of distribution of lipid-soluble drugs in the elderly patient is usually greater than in younger people of the same size. This has been shown to be the case for diazepam and may also be the case for thyroxine and propicillin. Drug distribution in the body is also affected by drug binding to serum albumin and red blood cells, as well as by the lipid solubility of the large organic molecules that must penetrate cell membranes.

Differences in the metabolism of psychotherapeutic agents in the liver and other tissues may also explain variation in drug response. The relative rates of conversion of a drug to its active and/or inactive metabolites and the effects of other substances on the enzymatic processes involved may vary substantially from one patient to another, resulting in marked differences in the effective life of the drug. Differences in the relative rates of metabolism along various pathways may explain variations in drugs' effects (e.g., why some patients become depressed after chronic treatment with amphetamines and others do not). Also, aging and a variety of disease states may complicate normal drug metabolism. For example, the metabolism of aminopyrine, amobarbital, and propranolol has been reported to decrease with age. These effects may be the result of decreases in liver function since sodium sulfobromophthalein excretion has been shown to become increasingly impaired in persons over the age of 50 and the activity of liver microsomal drug-metabolizing enzymes has been shown in rats to decrease with age, suggesting that a similar condition may exist in humans.

The elimination of most psychotherapeutic agents from the body depends on conversion of the lipid-soluble substances to water-soluble compounds and on excretion by the kidneys or other organs. Age-related decreases in glomerular filtration, renal blood flow, and tubular excretory capacity have been documented. Digoxin and creatinine clearance in the aged are also reportedly reduced, although the impaired ability of the kidneys in the aged to excrete drugs is not necessarily detectable by serum creatinine clearance determinations. As opposed to propranolol, in which blood level elevations with aging are probably due to decreased metabolism, elevations of digoxin and practolol blood levels in the elderly have been attributed to reduction in renal function.

Determining blood levels of psychotherapeutic agents in elderly patients may prove clinically useful. In a study on the use of doxepin for control of depression in elderly patients in nursing homes and at home, researchers established that the drug could be used successfully if they monitored doxepin plus desmethyldoxepin plasma levels on a weekly basis.

CONCLUSIONS

The interaction among drug absorption, distribution, metabolism, and elimination is the basis for availability of medication administered to target tissues. Detailed knowledge of the quantitative relationships involved and of the changes in pharmacokinetic processes with age will facilitate more accurate predictions of therapeutic, nontherapeutic, and toxic dosages in aging patients.

DRUG	Tricyclic antidepressants; MAO inhibitors; sedatives; tranquilizers; stimulants; lithium salts
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Depressed patients
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	29

PURPOSE

Treatment of depression in the aged is not generically different from treatment of depression in younger individuals. Because of certain age-related physical, physiological, and biochemical factors, however, drug prescription for geriatric patients must be modified in several respects. The present study provides an overview of the drugs suitable for treating depressions of the aged, indications for their use, and potential dangers from drug interactions.

SUMMARY

Drug types. Tricyclic antidepressants have proved effective in treatment of depressions, particularly the endogenous types. The variety of agents within the tricyclic class permits selection of a specific drug for particular depressive symptoms, e.g., nonsedating protriptyline or imipramine for withdrawn depression and sedating amitriptyline or doxepin for hyperactive depression. Unfortunately, these antidepressants take 1 to 4 weeks to reach adequate blood levels. Side effects that may be troublesome in elderly patients are twitching, tremors, ataxia, hypotension, and atropine-like effects. Dryness of the mouth affecting dentures, urinary retention and constipation, and glaucoma may also appear in the elderly. Tricyclics should be used only in patients with adequate cardiac function, and doses for elderly patients should be lower than usual.

Antidepressants of the monoamine oxidase (MAO) inhibitor class are especially useful for severe depressions; however, MAO inhibitors are also subject to a time lag of several weeks. They have come into disfavor because of their hepatotoxicity and potentiating effect upon pressor amines, with resultant hypertensive crises. Concurrent administration of sympathomimetic agents with MAO inhibitors is contraindicated. Doses should be lower for the elderly than for the young, and blood pressure and pulse of elderly patients should be measured twice daily.

Antianxiety agents such as diazepam work well in neurotic, tense, anxious depressions but are incapable of reversing a more profound depression. Side effects such as habituation, sedation, aggravation of glaucoma, diplopia, blurred vision, withdrawal, and paradoxical states of excitement may cause considerable distress to the vulnerable elderly.

The neuroleptics are not primary therapeutic agents for depression but may be indicated for an underlying psychosis or pronounced agitation. Acute dyskinetic effects can occur secondary to neuroleptic therapy, but more severe is the late onset hyperkinesia known as tardive dyskinesia, an irreversible condition resulting from long-term neuroleptic therapy. Older individuals with a history of treated psychosis are at particular risk for this incapacitating condition. The clinician may have to choose between initiating a socially stigmatizing extrapyramidal disorder or reemergence of psychotic symptoms. Other prominent side effects of neuroleptic therapy, such as orthostatic hypotension, drowsiness, nasal congestion, dry mouth, constipation, and urinary retention, also occur with greater frequency in the elderly than in otherwise similar younger patients.

Drugs with central nervous system stimulant properties, such as amphetamines, are not recommended for long-term treatment of depression, although they can be used to reduce the time lag of tricyclics. Cardiovascular side effects make these agents particularly dangerous for the aged. These drugs should not be used for more than a few days in an urgent clinical situation.

Lithium is effective prophylactically in recurrent depressions especially of the bipolar type but not in the treatment of endogenous or reactive depressions. The drug is safe if it is properly monitored and if sodium intake is maintained. Because of decreased renal lithium clearance, the elderly are particularly susceptible to the drug's central nervous system toxicity.

Drug interactions. Because they are liable to multiple system decompensation, the elderly are more likely to be treated with several drugs. Frequently, there is no clear rationale for the combinations, and a single dose of one drug might replace prescriptions for several different drugs. For other combinations there may be definite contraindications, and still others may cancel out each other's effects. Certain drugs alter the metabolism of other drugs. For example, phenobarbital used with phenothiazines to increase sedative effects may actually reduce such effects by lowering the serum level of phenothiazine.

Transport of one drug to its site of action may be blocked by another drug. Tricyclic antidepressants and certain phenothiazines block the adrenergic membrane transport system so that drugs such as guanethidine are not transported, accumulate, and cause the opposite of the desired effect. One drug may also alter excretion of another: lithium is safe only as long as the serum sodium levels are high enough to prevent excessive reabsorption and accumulation of the lithium. Such an interaction is apt to occur in elderly patients with cyclic affective disorders who are candidates for lithium therapy and who also have concurrent conditions militating for diuretic therapy, possibly with sodium-depleting drugs.

Certain drugs alter the drug mediator activity of other drugs. For instance, by their inhibition of monoamine oxidase such compounds as tranylcypromine and the antihypertensive pargyline potentiate the pharmacologic action of these pressor agents. Because of this interaction, unsuspecting elderly depressed persons taking tranylcypromine and hypertensive patients taking pargyline have suffered hypertensive crises after eating foods that contain high amounts of tyramine or from the ingestion of sympathomimetic amines, which are found in many over-the-counter cold remedies.

Finally, some drugs interfere with absorption of other drugs from the gastrointestinal tract. Antacids containing magnesium trisilicate and aluminum hydroxide interfere with the absorption of a variety of drugs, including tranquilizers. Cholestyramine, used in the treatment of hypercholesterolemia, may interfere with absorption of psychotropic agents.

CONCLUSIONS

Although the drugs discussed are useful for treating depression, all may have negative effects in elderly patients, even at doses considered normal for younger individuals. Drug interactions pose even more serious problems because of the multiple system decompensation of the elderly and the increased likelihood of multiple drug use. Inappropriate drug therapy may result from unrealistic expectations regarding positive drug effects and substitution of drugs for social therapy in the case of difficult patients. Evidence of age-related changes in important neuroenzymes, in nucleotides, and in analgesic response of the elderly makes urgent the need for additional research on the absorption, distribution, binding, metabolism, and excretion of drugs as they affect drug interactions.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Patients
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	72

PURPOSE

Many studies have shown that as people grow older, they have a greater chance of experiencing adverse drug reactions. It is also known that some drugs' activities are modified in elderly patients and that therapeutic regimens for elderly persons should reflect these modifications. Known problems of individual drugs include the more prevalent digitalis intoxication in the elderly, more frequent occurrence of erratic responses to barbiturates, and a greater danger of potassium depletion with thiazide diuretics.

This paper examines some of the underlying changes associated with increasing age that may explain some of the modifications in drug response that have been reported in elderly patients. The similarity of many drug responses in older persons and in the very young is also noted.

SUMMARY

Several studies indicate that the absorption of drugs may be more erratic and delayed in elderly persons than in younger persons. For example, the absorption rates of dextrose, galactose, 3-methyl glucose, calcium, iron, and thiamine are known to be reduced with increasing age. This is caused by a decrease in acid output with a corresponding decrease in drug solubility,

a reduced level of mesenteric blood flow, a reduction in size of the absorbing surface, and an impairment in relevant transporting enzyme systems. On the other hand, the absorption of some substances, such as cysteine and methionine, actually increases with age, probably because older persons need more of these materials.

A drug's availability and distribution once it reaches the circulation is affected by the drug's binding in the plasma, the blood flow and distribution, the drug's ability to pass through various membranes, and the characteristics of tissue affinity and binding. Changes in drug activity with age appear to be the result of impaired circulation and membrane permeability. Alterations of the space into which the drug is delivered may also change its distribution.

The rate at which drugs are metabolized and eliminated decreases with increasing age. Increasing age is accompanied by a reduction in the glomerular filtration and tubular secretory capacity of the kidney. Higher blood levels and greater plasma concentrations of many drugs have been observed in elderly persons than in younger patients. For example, the mean plasma half-life for antipyrine in 19 geriatric patients was 17.4 hours compared to a mean value of 12 hours for 61 young control subjects. Other factors that may affect drug metabolism and elimination in the elderly are reduced physical activity, hormonal changes, and changes in systems other than the kidneys.

Changes in the tissues or systems involved directly or indirectly as part of a drug's mechanism of action may also affect drug activity as a person grows older. Among these changes are differences in the number of receptors and concentrations of substrate, variations in the structural features and integrity of the responsive tissue, and alterations in the relationship of the components of a system. The mechanical limitations imposed by pathologic lesions and the loss of coordinated responses of systems may prevent the older person from being able to minimize the secondary actions of drugs, as would be possible in a younger person. For example, the decreased ability of older persons to regulate body temperature has been offered as the basis for the observation that elderly patients exhibit a greater fall in body temperature under general anesthesia than do younger persons. Older people are also less able to regulate blood sugar levels.

CONCLUSIONS

Numerous physiological factors will affect drug actions in the elderly. Prescribing physicians should be aware of the possibility that the expected responses to a drug may be altered in elderly and debilitated patients and should adjust the therapeutic regimen accordingly.

Bressler, R., and Palmer, J. Drug interactions in the aged. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore, Md.: Williams & Wilkins, 1974. Pp. 49-60.

DRUG	Multidrug
SAMPLE SIZE	Not applicable
SAMPLE TYPE	elderly persons
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	64

PURPOSE

The practice of medicine over the past 20 years has been characterized by the introduction of a large number of highly effective and safe pharmacologic agents, especially for treatment of chronic disease states. Each chemical agent has unique side effects, which occur with characteristic frequency. The concomitant use of two or more drugs sets the scene for a new set of reactions that would not be expected to occur with either drug alone. Interactions are thus much higher in patients given 16 to 20 drugs, who have a 40 percent reaction rate, than in persons taking 6 to 10 drugs, for whom the rate is 7 percent. The efficacy and toxicity of any new single chemical entity are determined for that drug in isolation. As a result, the potential for drug-drug interactions of new drugs is unclear at the time the drug comes into clinical use.

This study outlines possible drug-drug interactions and how these interactions may be affected by aging.

SUMMARY

Drug interactions--general. Physical-chemical incompatibility of substances even before administration is one example of drug-drug interaction that can affect a drug's effectiveness. For instance, delayed hypoglycemia can result from the administration of a mixture of regular insulin with protamine zinc insulin because the regular insulin is bound to the excess protamine in the latter compound. Another example is that insulin binds to glass, so that less than the calculated dose will reach the patient if it is mixed in a glass container with intravenous fluids.

Drug interactions in the gastrointestinal tract include the interference of food with the drug's absorptive process and the inactivation of some drugs at the low pH encountered in the stomach. Use of the drugs that decrease gastrointestinal motility can delay absorption of other drugs.

The bioavailability of drugs is directly related to the amount of unbound, free drug present in plasma. The many drugs that are reversibly bound to plasma or tissue protein are pharmacologically inert when so bound. The displacement of one drug by another from a protein binding site increases the amount of free, active drug and makes more drug available for metabolism and excretion. For drugs that are highly protein bound, a small change in protein binding will have a marked effect on the concentration of free drug. Endogenous substances may also be freed from protein binding sites by certain drugs; e.g., bilirubin may be displaced by salicylates or sulfonamides.

In general, the displacement of one drug by another from mutual protein binding sites is dependent upon drug concentration, the affinity constant of each drug for mutual binding sites, and the extent to which binding sites are saturated by the first drug. Usually the administration of a highly bound drug with a moderately bound drug may cause the displacement of the moderately bound drug, enhancing its effects and shortening its plasma half-life.

A number of drugs may prevent the access of drugs and endogenous substrates to their receptors; e.g., atropine may prevent acetylcholine from gaining access to its receptor, with subsequent symptoms of cholinergic blockade. Drugs may also alter the affinity of receptor sites for other drugs.

Drugs and other foreign compounds are metabolized by the microsomal enzymes of the liver, kidney, lung, and gastrointestinal tract. These reactions convert lipid-soluble substances into water-soluble substances. Many drugs (e.g., phenobarbital) are capable of influencing drug-metabolizing enzyme systems in a relatively nonspecific manner. Drugs that are lipid-soluble at physiologic pH have the potential for enzyme induction. This augmentation of drug metabolizing capability is related to dose, duration of exposure, and degree of protein binding. Drug interactions may also occur as the consequence of inhibition of drug metabolism. Some drugs may slow their own metabolism when administered in high doses.

Chemicals encountered in the environment may alter the action of drugs by stimulating or inhibiting the microsomal drug metabolizing enzyme systems. Agents capable of stimulating microsomal enzyme activity in animals include the halogenated hydrocarbon insecticides, herbicides, dyes used in food coloring, and nicotine. Further, a number of drugs may influence the renal clearance of other therapeutic agents.

Drug interactions in the elderly. Limited data exist on changes in drug effects with aging, but some factors are known. Fat, thiamine, and glucose are not absorbed as well through the gastrointestinal tract as age increases, suggesting that drugs will not be absorbed well either.

The transportation and distribution of a drug is necessary for its effectiveness. With advancing age, total systemic perfusion is reduced and a redistribution of existing blood supply may occur in favor of cerebral and coronary circulations at the expense of renal and hepatic circulation. Lesser supplies of blood to the liver or kidney can influence drug metabolism and/or the excretion of the metabolized drug.

In the aged, the percentage of body weight contributed by body fat is usually increased and this tends to lengthen the duration of action of drugs that are localized in body fat. Moreover, subtle changes in the type and composition of plasma proteins may alter the binding of drugs circulating in plasma. Should the affinity be diminished, more free drug would result from any given dose absorbed.

Animal studies suggest that with advancing age microsomal metabolism of drugs is reduced. The same may be true in humans, as thyroxin degradation has been found to be decreased with age. Furthermore, glomerular filtration, renal blood flow, and tubular excretory capacities are somewhat decreased with increasing age, so that the body is less able to rid itself of drugs. The excretion of antipyrine, barbiturates, and antibiotics may be inhibited in older individuals. Furthermore, changes in the lungs may also lessen their ability to excrete drugs.

CONCLUSIONS

Potential drug interaction problems in the aged are numerous because of the higher incidence of chronic drug therapy in the population. The authors recommend that physicians maintain a high index of suspicion, especially when drugs are added to or removed from a previously stable therapeutic regimen.

ALCOHOL USE AND ABUSE



ALCOHOL USE AND ABUSE

Meyer D. Glantz, Ph.D.

The problem of elderly alcohol abuse is closely related to the problem of inappropriate elderly drug use. Alcohol abuse among the elderly is, however, more widely acknowledged and more thoroughly researched. It is generally accepted as being a real and possibly growing problem, and it may provide a model for hypotheses about elderly drug abuse. In addition, the use of alcohol in combination with drugs may be involved in a large percentage of instances of inappropriate drug use.

Many researchers believe that the prevalence of elderly alcohol use and abuse is much lower than the levels of use and abuse among other age groups. Cahalan et al. (1969) found in their nationwide study that older adults have lower levels of alcohol use than younger adults, and some researchers (e.g., Gorwitz et al. 1970) have reported that, at least for alcoholic patients in treatment facilities, the age incidence of alcoholism peaks between the ages of 35 and 50 years. Some reports hypothesize a sort of "maturing out" of alcoholism with age and speculate that, at least for many individuals, alcoholism may be a self-limiting problem that is autonomously mitigated and controlled or entirely overcome in the majority of older persons. However, other reports indicate that alcohol abuse among elderly adults is in fact a serious problem that is both underdiagnosed and underreported.

In one such study, Bailey et al. (1965) conducted a household prevalence survey of 3,959 dwelling units in the Washington Heights area of New York City and found that there was a second-peak prevalence of alcoholism in the 65- to 74-year-old age group that was almost as high as the level of the first-peak prevalence that they found in the 45- to 54-year-old group. Interestingly, the prevalence of alcoholism among the 55- to 64-year-old age group was considerably lower than either of the two adjacent age groups. The decline in prevalence in the 55-to-64 age group compared to the 45-to-64 age group may account for the conclusion of many researchers that alcoholism decreases with age. This belief would be bolstered by the failure of many studies to include subjects over 60 years of age.

The actual prevalence of alcohol use problems among the general elderly adult population is not known, although estimates of elderly alcoholism based on limited studies range from 2 to 10 percent, with estimated prevalences being considerably higher for elderly adults who are widowers, nursing-home residents, patients of general medical wards, and psychiatric patients (Zimberg 1979; Schuckit and Miller 1976). For example, studies in general hospitals of older medical patients report alcohol problem prevalences ranging from 15 to 49 percent (Gomberg 1980).

Diagnosis of alcohol abuse or alcoholism in the elderly is difficult and complicated; the alcohol problem is likely to be denied and hidden by the elderly and often even by their families. Physicians are often unwilling or unable to recognize elderly alcohol problems, and domiciliary and health care facilities often do not address it as a problem. Elderly alcohol abusers themselves may be unaware that they have an alcohol problem, and they may suffer from symptoms that they do not realize are related to their use of alcohol (Eckhardt 1978; Shropshire 1975; Zimberg 1974a). Many of the neuropsychological consequences of alcoholism are comparable to those associated with aging (e.g., Blusewicz et al. 1977), and some of the concomitants of intoxication are also similar to some of the pathological symptoms of aging (e.g., Parker and Noble 1980). There are also a number of psychological problems that may be associated with both alcohol abuse and aging. Even relatively severe alcohol abuse problems may be attributed by family, physician, and the elderly person to the "normal" consequences of aging.

Nevertheless, it is probable that the problem of alcohol abuse among the elderly, although serious, is less severe than the problem among younger adults. However, the population at risk for alcohol use problems is proportionately smaller for the elderly. Those individuals who are presently older were raised in cultural environments that for many included a strong tradition of temperance. National surveys (e.g., Armor et al. 1977) show that 52 percent of elderly men and 68 percent of elderly women are abstainers; these percentages drop with each successively

younger age group. While this may be partly attributable to a developmental trend of increased abstinence with age, it is probable that the trend is at least partly a cultural phenomenon, and that the level of abstinence of the currently old is greater than the level of abstinence likely to be maintained by the next younger group (who are currently 50 to 64 years of age) when they become elderly. This suggests that the percentage of users of alcohol in the 65-and-older population will increase for at least the next 10 to 15 years. While an increase in the percentage of alcohol users does not necessarily entail an increase in the percentage of abusers, it does mean an increase in the population at risk, and, unfortunately, it seems likely that there will be some increase in the magnitude of abuse; research has shown that an increase in per capita consumption of alcohol is usually associated with an increase in alcoholism (de Lint 1974; Faris 1974).

One important question is whether elderly alcoholics develop their alcohol problems during old age or at earlier points in their lives. While there are likely to be at least four or five different patterns of alcoholism onset and reinitiation that describe elderly alcohol abuse (e.g., Dunham 1981), most studies have simply categorized elderly alcoholics as having either an early or late onset of their problem. The consensus of these studies is that approximately two-thirds of elderly alcoholics are "early onset" alcoholics with longstanding problems, while one-third are "late onset" alcoholics who developed their drinking problems later in life.

The elderly problem drinker probably has a different pattern of drinking than his or her younger counterpart. Studies have suggested that elderly alcoholics typically consume less alcohol (per drinking occasion) than younger alcoholics but that they are more likely to drink on a daily basis (e.g., Schuckit and Pastor 1978b; Harford 1977). Harford and Mills (1978) found that the frequency of drinking does not decrease with age, but the average number of drinks consumed per occasion does decrease with age. The lower per-occasion alcohol consumption of the elderly drinker may be somewhat misleading, however, as elderly people may be more sensitive to alcohol than younger adults, and for them it may have an increased intensity and period of effect (Sun and Samorajski 1975; Vestal et al. 1977; Wiberg et al. 1979). According to Zimberg (1978a) the elderly alcoholic seldom engages in more than mildly severe drinking, becoming intoxicated no more often than once per month. Although the elderly alcohol abuser may have some impairment in social interactions, family relations, or occupational functioning, severe physical or legal problems are less likely, and the signs and symptoms of the alcohol addiction pattern usually associated with younger alcoholics are less evident. Smart and Liban (1981) found that the factors affecting alcohol dependency and alcohol-related problems were different for the over-60 age group than for younger groups. In particular, they found that volume and frequency of alcohol consumption were less significant predictors of alcohol dependency and problems for the elderly than for younger problem drinkers.

Older problem drinkers seem to drink as a means of coping with the stresses of aging. Older alcoholics, particularly late-onset alcoholics, do not seem to have the deep-rooted psychological problems or the personality characteristics of younger alcoholics. Rosin and Glatt (1971) reported that late-onset alcoholism was associated with the stresses and problems of aging, including depression, bereavement, loneliness, retirement, marital stress, and physical difficulties. Rathbone-McCuan et al. (1976) reported that older alcoholics drink primarily to alleviate depression and to escape their problems. Individuals at greater risk may be those who have both lost their spouse and, through retirement, the structure and reinforcements of employment. As elderly alcoholics are more likely to be "reactive" problem drinkers, they are generally responsive to treatment. Unfortunately, many cases of elderly alcoholism go undiagnosed and untreated. Rathbone-McCuan et al. (1976) found in their Baltimore survey that 85 percent of those who could be diagnosed as alcoholic were not receiving any therapeutic intervention for their alcohol-related problems.

Carruth (1973) suggested that elderly problem drinkers encounter nine constellations of alcohol-related consequences reported for the general population by Cahalan et al. (1969):

- (1) direct consequences of heavy alcohol use such as hangovers, blackouts, memory loss, and "shakes,"
- (2) psychological dependence on alcohol,
- (3) health problems and accidents resulting from existing health problems being exacerbated by alcohol use,
- (4) financial problems,
- (5) family and marriage problems,
- (6) problems with friends and neighbors,
- (7) job-related problems,

- (8) "belligerence," and
- (9) problems with police or the law.

One of these consequences, problems with the law, has been the subject of a number of research reports (e.g., Epstein et al. 1970; Shichor and Kobrin 1978). These studies indicate that analyses of criminal offense patterns among the aged have found that most arrests of the elderly are for misdemeanor offenses directly connected with the consumption of alcohol.

A serious consequence not included in Carruth's list is the danger of alcohol-drug interactions (cf. Seixas 1979; Forni 1978). The elderly are particularly susceptible to this type of interaction for a number of reasons. First, the elderly take a disproportionately large number of prescription and over-the-counter drugs in general and a disproportionately large number of psychoactive drugs, including drugs with potential psychoactive side effects. Therefore, they are at greater risk, particularly as a large number of these drugs can interact with alcohol. Second, the elderly may metabolize alcohol and many drugs more slowly than younger adults, and this creates a greater span of time during which consumed drugs and alcohol may interact. In some cases, an interaction can still occur with as much as a day and perhaps even 2 days separating the consumption of the drug(s) and the consumption of alcohol. Third, the elderly may be more sensitive or more reactive to the effects of an alcohol-drug interaction. Not only are the elderly at great risk for drug-alcohol interactions, but the interactions may go undetected when they do occur. This has the potential to be an extremely serious problem for the elderly. Guttman (1977) for example, found that approximately half of the respondents in his study reported using some type or combination of legal drugs and over-the-counter drugs in combination with alcohol. Unfortunately, there has been very little research attempting to determine the prevalence of drug-alcohol interactions and the extent and severity of the consequences.

The literature on alcohol use and abuse by the elderly is a generally informative one. However, certain questions requiring research remain. Perhaps most important of the unanswered questions is the issue of the prevalence of alcohol abuse and alcohol-related problems among the elderly population. Replication and extension of the research on the antecedents and risk factors predictive of late-onset and reinitiated drinking patterns are needed. It is also important to determine the prevalence of the various onset and reinitiation patterns. Some alcoholics reduce their drinking as they grow old, and it would be quite helpful to know the determinative factors of this pattern of remission. The development of a readily applied diagnostic assessment for the identification of elderly alcohol problems is crucial.

Equal in importance to the needed research is the essential task of educating health care and service providers about the problems of elderly alcohol use and abuse. Convincing the health care and service communities that a problem exists and training them to identify and help elderly adults with alcohol problems would prove a tremendous gain.

A fairly consistent picture of elderly alcohol problems seems to emerge from the literature. Problem drinking among the aged involves more people than the relatively few skid-row derelicts. Alcohol abuse among the elderly is a significant problem; even the most conservative prevalence estimates implicate a very large number of elderly people. One-third of elderly alcoholics are late-onset problem drinkers, and their drinking is likely to be related to attempts to cope with the stresses and problems of old age rather than to more deeply rooted psychological pathologies. Elderly alcohol abusers are likely to drink at least as often, though in smaller quantities, than their younger counterparts, and their alcohol abuse is less likely to have consequences involving severe and obvious social or physical problems or impairments. The problems that do result may often be attributed to the "normal" problems of growing old. Elderly drinkers are at great risk of drug-alcohol interactions. Elderly alcohol abuse is often hidden, denied, and unrecognized; the elderly alcohol abuser may even be unaware that he or she has an alcohol use problem. As financial and other environmental stresses will increase for the elderly for at least the next decade, and as a greater percentage of the elderly population will be at risk as nonabstainers, the number of elderly alcoholics may increase dramatically over the next 10 to 20 years.

DRUG	Alcohol
SAMPLE SIZE	310
SAMPLE TYPE	Alcohol users living in low-income housing
AGE	Mature adults; aged (60 and older)
SEX	Both
ETHNICITY	Black; white; Latino
GEOGRAPHICAL AREA	Dade County, Florida
METHODOLOGY	Descriptive study; retrospective survey
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	10

PURPOSE

Findings of literature on aging and alcohol are paradoxical. On one hand, researchers display a strong sense of urgency in dealing with a most serious problem; on the other, discussion focuses on the tendency of drinking and drinking-related problems to taper off in older cohorts. In recent years, several authors have reported two separate groups of elderly alcoholics: those who have longstanding drinking problems and those who begin drinking in response to the stress of aging.

A great need exists not only for studies describing drinking patterns among the elderly but also for data revealing the motivations and determinants of decreasing and increasing patterns of abusive drinking with advancing age. This study attempts to describe various patterns of alcohol use over the human life span, to facilitate treating drinking problems in the elderly.

METHODOLOGY

The data for the study were drawn from interviews with 310 persons 60 years of age and older who were living in Government-funded, low-income housing for elderly people in Dade County, Florida. Only 100 respondents reported some drinking during their lifetimes. A total of 67

percent of the sample were female. Forty-six percent of the sample were white; 40 percent, Latin; and 14 percent, black.

A self-reported retrospective measure of life-drinking patterns was constructed, focusing on key events in subjects' drinking history. For different periods of their lives respondents were placed in one of five drinking categories--heavy drinkers, moderate drinkers, light drinkers, infrequent drinkers, or abstainers--which were simplified adaptations of Cahalan, Cisin, and Crossley's (1969) Quantity-Frequency Variability measure. Six life-patterns of drinking (excluding abstinence) were differentiated: rise and fall (25 percent of the drinkers), rise and sustained (28 percent), light drinking throughout life (21 percent), light drinking with a late rise (7 percent), late starters (11 percent), and highly variable (8 percent).

RESULTS

Seventy-seven percent of the drinkers changed categories between the years they drank the most and the time of the study. The percentage in the heavy drinking category nearly doubled between the respondents' heavy and low drinking years. Reasons given for a decrease in drinking after age 50 were specific health problems (40 percent), loss of interest (13 percent), reduction in socializing where drinks are served (10 percent), expense (9 percent), and general health reasons (6 percent).

Abstainers were likely to be female (78 percent versus 51 percent for males), married or widowed, Latin, and Catholic. Blacks were the least likely to be abstainers. Education was not a significant factor in abstinence.

Rise-and-fall pattern drinkers began drinking at age 21, rose above light drinking at age 24, drank heavily for 17 years, and began drinking less at age 61, abstaining completely by age 68. Drinkers of this group were likely to be female, to be less educated, and to have an alcohol-related illness. Ethnic differences were minimal.

Rise-and-sustained pattern drinkers began drinking regularly at age 17, increased their intake at age 25, and continued drinking heavily for 36 years. Persons in this category were most likely male, white or black, and educated. This group was the least likely to have alcohol-related illnesses.

Light-throughout-life drinkers began drinking at age 30 and frequently returned to abstinence, usually at about 72 years old. Drinkers of this type tended to be females, Latins, and individuals with less education than a high school diploma. They were moderately likely to have alcohol-related illnesses.

Light drinkers with a late rise pattern began drinking at age 31 and started drinking heavily at age 74. Males and Latins were most prevalent in this group. Educational levels were not significant, and the level of alcohol-related illness was low.

Late-starting drinkers began drinking at age 54 (for those who later continued drinking) or at age 49 (for those who later stopped drinking) and continued drinking for 3 years (the fall group) or 17 years (the continuous group). The continuous group drank heaviest upon starting drinking, and the drop group returned to abstinence at age 68. Late starters tended to be male and black or white but not Latin. The drop group was predominantly female. Sex and education were not significant factors for the overall group, and the level of alcohol-related illnesses was only moderate.

Variable pattern drinkers began drinking at age 22, started drinking more at age 30, crossed over the light-moderate line three times, reached the first drinking peak after 9.6 years, and decreased consumption at ages 56 and 65 years. Drinkers of this group were very likely to be black, to be male, and to have alcohol-related illnesses.

CONCLUSIONS

There are at least four drinking patterns that can be problematic for the elderly, rather than only two as has been generally described in the literature on geriatric alcoholics. These are the "rise and sustained" pattern, the "light and late-riser" pattern, the "late starter" pattern,

and the "highly variable" pattern. These four categories comprise 48 percent of the 85 identified drinkers with discernible life drinking patterns.

Findings indicate that women are overrepresented in drinking patterns with a high rate of return to abstinence, while males are overrepresented in patterns with continued heavy drinking. Blacks are frequently found in the variable pattern, with high levels of alcohol-related illness, but not in the light-for-life pattern, as are Latins. Whites are most likely to belong to the rise-and-sustained group. Individuals of the rise-and-sustained and those in the highly variable categories are most likely to become early onset alcoholics, while light-late-rise drinkers and late-start-continuous drinkers are likely to become late onset drinkers. Research should attempt to differentiate the problem types and drinking motivations for the separate groups to facilitate development of suitable treatment modes.

DRUG	Alcohol
SAMPLE SIZE	993
SAMPLE TYPE	General population
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Durham, Ontario, Canada
METHODOLOGY	Household survey
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	1978
NO. OF REFERENCES	19

PURPOSE

Excessive drinking among older persons has recently been recognized as a significant problem. Much of what is known about drinking and drinking problems has come from general population surveys. Without exception, studies have shown high rates of drinking among younger persons and very low rates among those aged 60 and over. Although age is used as a predictor of drinking problems in survey studies, no information is given on whether or not other factors that explain drinking problems are the same for both elderly and youthful populations. The present study uses multivariate analysis to determine predictors of drinking problems at different age levels in the population.

METHODOLOGY

A household survey of the adult population aged 18 years and over was conducted within the Regional Municipality of Durham, Ontario, Canada, during 1978. The sampling and interviewing for the study were carried out by the York University Survey Research Centre, under contract with the Addiction Research Foundation. The interview questionnaire examined demographic characteristics, drinking patterns, and alcohol-related problems, particularly symptoms of alcohol dependence.

Seven dependency symptoms were used to calculate a dependency symptom score for each respondent. A total of 10 background characteristics were selected as independent variables based on previously demonstrated association with problem drinking among the general public: sex, birthplace, marital status, religious affiliation, participation in religious activities, employment status, Blishen Score (a socioeconomic index for occupations), drinking frequency in previous year, annual income, and consumption on drinking days.

The 993-person sample consisted of 165 persons aged 18 to 25 years old, 360 persons aged 26 to 39 years old, 324 persons aged 40 to 59 years old, and 142 persons 60 years old or older. Dummy variable multiple regression analyses were conducted separately for each age group to predict the probability of dependency, to identify the most important variables for prediction, and to determine the unique contribution of each variable to the prediction.

RESULTS

A far greater proportion of the 18- to 25-year-olds (39.4 percent) than respondents 60 years old or older (10.6 percent) reported at least one dependency symptom. Elderly problem drinkers were the most difficult to predict. They were likely to be male, born outside Canada, not retired, in the lower income and socioeconomic groups, and drinking several times a week, though not in particularly large quantities. The prevalence of dependency symptoms was higher among all age groups than the prevalence of problem symptoms. As reported in previous literature, the prevalence of both types of symptoms was less for each successively older age group.

The 10 background variables accounted for a larger proportion of variation in the probability of dependency than in problem symptoms for all age groups except the eldest. Serious problems are difficult to predict among the elderly, probably because the lower consumption rates of this group are less likely to lead to the symptoms included in the dependency measure.

Considered separately, more of the background variables were found to be significant predictors of dependency symptoms than of problem symptoms for each age group except the eldest, and more were significant predictors of both criteria for the youngest than for the eldest age group. Controlling for other factors, however, reduced the effects of the predictors considerably. The strongest variables in predicting the probability of dependency symptoms among all age groups and in predicting problem symptoms among all age groups except the eldest were volume and frequency of consumption, although frequency of drinking decreased in strength when other factors were controlled. In the 60-plus age group, birthplace was the most important predictor; frequency of drinking ranked second in the order of unadjusted effects but fifth in the order of adjusted effects. Sex ranked fourth in the order of unadjusted effects but second in the rank of adjusted effects, while volume of consumption ranked fifth in unadjusted effects and fourth in adjusted effects.

CONCLUSIONS

Findings indicate that factors affecting alcohol dependency and alcohol-related problems are different for the over-60 age group than for younger groups; it was more difficult to predict which of the elderly were problem drinkers. Volume and frequency of consumption are less significant predictors for the older group than for younger problem drinkers. This is important because most preventive programs assume the prime significance of these two factors. Further studies should be undertaken with predictors specifically related to the elderly, including degree of isolation, physical health, and family involvement.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Noninstitutionalized elderly
AGE	Aged
SEX	Both
ETHNICITY	Cross-cultural
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	138

PURPOSE

Little reliable information exists regarding the drinking customs, drinking behaviors, and drinking problems of older persons. This lack of information is not surprising, given the disagreements about the definition of alcoholism and the nature of the aging process. Folk wisdom offers the images of both the old man who attributes his longevity to abstinence and the old man who claims to have drunk whisky every day of his life.

This report summarizes the published literature on older persons' abstinence, social drinking, and drinking problems. Recommendations for prevention, rehabilitation, and future research programming are also presented. The literature surveyed includes National, State, city, and community surveys; reports on residents of housing designed for the elderly; studies of professional attitudes; and hospital and outpatient clinic reports.

SUMMARY

The use of alcohol involves a personal decision, even when peer pressure is great. Alcohol is used primarily socially and recreationally, although it is also considered in many cultures to have medicinal qualities. Adults in general are known to drink more often but in smaller quantities

per occasion than younger persons. The significant drop in the percentage of heavy drinkers comes in the male age group over 65 and the female group over age 50. Data from other countries confirm these findings. Economic, physiological, and cultural reasons have been advanced to explain the lowered drinking among elderly persons.

Estimates of the number of elderly persons who present drinking problems vary tremendously, ranging from a low of 2.2 percent in a community survey to counts of 45 percent and 49 percent of patients in hospital wards. The New York City survey reported by Bailey, Haberman, and Alksne in 1965 has been used as the basis for subsequent statements that between 2 percent and 10 percent of persons over age 60 suffer from alcoholism. A Baltimore study of elderly persons living both in the community and in nursing homes and domiciliary settings produced the conclusion that the rate of alcoholism among the elderly is about 12 per 100 (Rathbone-McCuan et al. 1976). A New Jersey study of care providers yielded an estimate of a 7.5 percent rate of alcohol problems among the elderly (Carruth et al. 1973). Other studies present estimates of alcoholism prevalence among male hospital patients as ranging from 25 percent to 70 percent and indicate that from 11 to 12 percent of mental hospital admissions among persons 65 and older involve alcohol problems. Furthermore, arrests for drunkenness seem to involve a disproportionate number of elderly men, and elderly male alcoholics greatly outnumber elderly female alcoholics, although the issues and problems facing the older female problem drinker have not been studied. Almost nothing is known about alcohol problems in the black elderly population. Similarly, little is known about whether the combination of medication and alcohol creates even more problems for older persons.

It is generally agreed that terms used to characterize younger alcoholic persons are not generally appropriate to older alcoholics. The role of personality variables and psychiatric symptomatology appears to be smaller for older alcoholics than for younger alcoholics. The three types of histories among elderly alcoholics are the long, unremitted histories of heavy drinking; the periodic histories of those who lapse into and out of alcoholism; and the reactive histories of those problem drinkers whose drinking has been precipitated by losses and stresses of later years. Older alcoholics' primary alcohol-related problems are with family, health, and the police. In interviews, those who become alcoholics at a later age also report more depression and feelings of alienation and isolation than their age peers. However, generalizations about elderly alcoholics in comparison with younger alcoholics or nonalcoholic age peers would be premature.

Outreach and educational campaigns should be directed to relatives of older persons, to emergency room personnel in hospitals, and to the police. Health care personnel should be included in awareness campaigns because of heavy drinking's compounding effect on medical problems.

The prognosis for persons who are "reactive" problem drinkers is good. Various forms of social therapy, such as family therapy, group therapy, and Alcoholics Anonymous, seem to be effective, and individual therapy may involve a strong attachment to the individual therapist. Older alcoholics of all kinds need the concern, interest, and attention not only of alcoholism clinic personnel but of a variety of social resources, such as health and social welfare agencies.

Positive aspects of alcoholic beverages must also be considered. One study suggests that in a sample of older people in the Upper East Side of Manhattan in New York City moderate drinking accompanies good health and adequate social adjustment. Others suggest that moderate amounts of alcoholic beverages often benefit geriatric ward patients.

CONCLUSIONS

The problem of alcoholism among older persons needs to be addressed. This population appears to be very responsive to treatment programs. Senior centers and housing developments for older persons should be the centers of prevention campaigns. Efforts should be directed particularly toward elderly men and women recently widowed and living alone. Subgroups that sanction relatively heavy drinking should also be targets. Postretirement training programs should include information about drinking and alcohol problems. Social therapies should be emphasized in treatment plans for elderly problem drinkers. Treatment plans should also consider medical problems, the need for formal support programs, the need for a structured approach, and special problems, such as those of women or the need for transportation. Basic research on a wide variety of topics related to alcohol and the elderly is also needed.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	General population; elderly persons
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Cross-cultural
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	18

PURPOSE

Although problem drinking appears to be a less prevalent problem among elderly persons than among other age groups, significant numbers of elderly persons do have drinking problems. Mishara and Kastenbaum review studies on the extent and nature of alcoholism and alcohol-related problems in older groups.

SUMMARY

For the elderly, drinking problems include nine constellations of symptoms: (1) hangovers, blackouts, and other results of drinking, (2) psychological dependence on alcohol, (3) health problems and accidents related to alcohol use, (4) financial problems related to alcohol use, (5) problems with spouses or relatives resulting from alcohol use, (6) problems with friends or neighbors resulting from alcohol use, (7) problems on the job, (8) belligerence associated with drinking, and (9) problems with police or the law as a result of drinking. These difficulties may occur in combination, and most people are defined as problem drinkers when they display more than one of these symptoms. People may have some of these symptoms without being known as problem drinkers.

National population surveys have found fewer heavy drinkers among the elderly than in other age groups, but research on alcohol use by the elderly is dominated by studies reporting the dire conditions of the elderly alcoholics and their need for help. On the other hand, some authors have concluded that alcohol abuse among the aged is not a major social problem. This may be because these researchers view other problems as more serious for the elderly, however.

Numerous studies have found substantial rates of alcoholism among institutionalized elderly persons. An extensive study of rest homes in France revealed that 25 percent of the male residents were acute alcoholics, while 41 percent were reported by the medical directors to be chronic alcoholics (Gaillard and Perrin 1969). From 1 to 10 percent of the women were reported as having acute alcoholism, while 11.6 percent were reported as chronic alcoholics. The cultural practice of drinking at a young age, residents' low educational levels, and the lack of recreational opportunities at the homes were all cited as reasons for the high prevalence of alcoholism. The study's authors concluded that alcoholism among the institutionalized elderly is primarily a social problem rather than a medical problem.

A Texas study found that 44 of 100 consecutive admissions of elderly persons to a psychiatric screening board had some type of alcoholism (Gaitz and Baer 1971). A 1969 study of admissions to State and county mental hospitals revealed that 30 percent of the persons aged 55 to 64 were admitted for alcoholism, compared to 9 percent of those aged 65 to 74 and 1 percent over age 75 (Kramer 1969). Other studies have shown that persons over age 60 or 65 who are admitted for alcohol-related disorders make up between 5 and 54 percent of admissions to the institutions surveyed.

Despite these statistics, a fairly small proportion of people treated for alcoholism are over age 60 or 65. Data from the U.S. National Institute of Mental Health (NIMH 1969) in 1967 indicated that 6 percent of people over age 65 admitted to State and county mental hospitals were diagnosed as suffering from alcoholism. Although persons aged 65 and over constituted only 2 to 4 percent of all outpatient psychiatric services according to NIMH data, 12 percent were diagnosed as having alcohol-related problems. A high proportion of older alcoholics were treated at general hospitals or Veterans Administration hospitals, perhaps because of medical complications.

Few data exist on the dates of onset of heavy drinking among elderly alcoholics. Many people reduce or stop their alcohol consumption before their later years. Some elderly people who were alcoholics in their younger years do survive to continue their drinking in old age. The percentage of drinking problems that develop in individuals over age 60 appears to be quite small, according to the available data.

Although the characteristics of elderly problem drinkers have been studied by several investigators, few data exist comparing elderly people who are problem drinkers to those who drink but do not exhibit alcoholism problems or comparing problem drinkers to those who abstain in old age. Rosin and Glatt (1971) associated long-standing patterns of problem drinking with psychological traits of neuroticism, self-indulgence, egocentricity, and a reliance on alcohol as a psychological support. Bereavement was the most important cause of reactive drinking. Wax (1975) found that most known problem drinkers had been separated from spouses and alienated from children. Bahr (1969) found that people whose drinking problems began after age 45 were more likely to live with their families than were those who began drinking earlier. Lutterotti's (1967) Italian studies suggested that the family situation was one of the most important factors in alcoholism, with a harmonious family situation being best for older people.

Schuckit (1977) did not find differences between active and inactive alcoholics in terms of psychiatric or medical histories or demographic characteristics. Schuckit and Pastor (1978) observed that depression is almost invariably present in active alcoholics, although it is a transitory effect of alcohol that may disappear after abstinence. Schuckit and associates (1977) also found elderly alcoholic men and women to be quite similar. Apfeldorf and Hunley (1975) used an alcoholism scale based on the Minnesota Multiphasic Personality Inventory and discovered that the scale could identify problem drinkers who had not as yet received diagnoses of alcoholism. In addition, a survey done by Williams and Mysak (1973) of health care providers revealed that they viewed loneliness, loss of spouse, or loss of other meaningful relationships as the most frequent cause of problem drinking. The second most frequently mentioned cause was physical and mental deterioration.

CONCLUSIONS

The lack of detailed study of older problems drinkers makes impossible any conclusions regarding the completeness of the available information. However, studies of individual agencies and institutions suggest that alcohol problems among the elderly may be much more prevalent than indicated in nationwide surveys. In addition, some older persons experience alcohol problems as a reaction to difficulties in old age, whereas other older persons' alcohol problems are an extension of a lifelong behavior pattern. Personnel who deal with the elderly need to be educated to recognize and anticipate alcohol problems that otherwise might be mistakenly attributed to the typical behavior of old age.

DRUG	Alcohol
SAMPLE SIZE	102
SAMPLE TYPE	Social drinkers
AGE	Young adults; mature adults (range: 28-63; mean: 43)
SEX	Male
ETHNICITY	Not specified
GEOGRAPHICAL AREA	California
METHODOLOGY	Correlational study
DATA COLLECTION INSTRUMENT	Questionnaires; Shipley Institute of Living Scale; Halsted-Reitan Category Test; Wisconsin Card Sorting Test; free-recall learning test
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	27

PURPOSE

Aging and alcohol appear to have similar effects on intellectual processes. Several investigators have suggested that the aging brain is more sensitive than the young brain to the effects of alcohol. However, most research has focused on alcoholics, while most persons who drink are not alcoholics. This study explored the effects of age and alcohol consumption on the cognitive performance of a sample of men consisting mainly of social drinkers.

METHODOLOGY

Questionnaires returned by the 211 respondents to a survey of 450 randomly selected men living in a suburban California community were screened by a physician to ascertain each respondent's eligibility to take part in a test session. Respondents who were accepted were between ages 28 and 63 and had no histories of severe trauma of the central nervous system or the use of psychoactive medicines. A total of 102 subjects completed the test session. The subjects had a mean age of 43 and were for the most part married and educated through or beyond college.

The average amount of absolute alcohol consumed per drinking occasion was calculated from responses to questionnaire items about types of beverages, size of drinks, and number of drinks

consumed per drinking occasion. Subjects were asked to refrain from drinking or taking psychoactive medicines for 24 hours prior to testing and to refrain from smoking throughout the 1½-hour test session. The test battery included the Shipley-Institute of Living Scale for Measuring Intellectual Impairment (SILS), the Category Test of the Halsted-Reitan neuropsychological test battery, the Wisconsin Card Sorting Test (WCS), and a multitrial free-recall learning test. These tests variously measure general intellectual functioning, abstracting and adaptive abilities, recall, and ability to sustain a pattern of search and persistence in problem solution.

RESULTS

The subjects drank an average of 204 times per year, consuming an average of 42 ml of absolute alcohol per drinking occasion. Cognitive performance decreased significantly with increasing drinking and increasing age. Several of the correlations between drinking and cognitive performance were about equal to those between age and cognitive performance. However, memory tests showed significant declines with increasing age but not with drinking. On the WCS Test, the subjects over the median age of 42 showed a close association between increased drinking and reduced test performance, while no such close association existed for the younger subjects.

CONCLUSIONS

Both social drinking practices and age are significantly and inversely related to performance on tests of abstracting, adaptive abilities, and concept formulation. The cognitive deficits associated with age and drinking practices are qualitatively similar. In addition, alcohol's adverse effects on conceptual formation and shifting are significantly greater in old than in young subjects. Older persons' reduced central nervous system tolerance to alcohol may explain these findings. Further research should focus on the effects of alcohol and age in women, the effects of abstinence or reduced drinking, and the underlying physiological mechanisms involved.

Barnes, G.M. Alcohol use among older persons: Findings from a western New York State general population survey. Journal of the American Geriatrics Society, 27(6):244-250, 1979.

DRUG	Alcohol
SAMPLE SIZE	1,041
SAMPLE TYPE	General population
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Erie and Niagara Counties, New York
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Household surveys
DATE(S) CONDUCTED	Fall 1975
NO. OF REFERENCES	24

PURPOSE

The rates of alcohol abuse among older persons vary considerably, depending upon the criteria employed to define alcohol abuse and upon the population chosen for study. Thus, while the rates of alcohol abuse among older adults in the general population are generally lower than those among their younger counterparts, problem drinking may be greater among the elderly observed in institutional settings than among the elderly in general. Two groups of alcohol abusers have been identified among the elderly: those who have been drinking for most of their adult lives and those who begin drinking late in life in response to the stresses of aging. The present study explores the nature and causes of drinking problems in elderly adults from a household survey sample.

METHODOLOGY

The total sample study encompassed 1,041 persons aged 18 or older living in households in Erie and Niagara Counties in western New York State. Of the sample, 237 individuals (100 male and 137 female) were over 60 years old, and 154 (72 females; 82 males) were between the ages of 50 and 59. Personal interviews were conducted in the fall of 1975. The drinking questions on the survey instrument were a slightly modified version of that used in the 1964-1965 national study

of American drinking practices by Calahan, Cisin, and Crossley (Calahan et al. 1969). The survey responses were used to establish a Quantity-Frequency-Variability index of drinking behavior. Five classifications were derived: heavy, moderate, light, or infrequent drinkers, and abstainers.

RESULTS

The rate of abstention was slightly higher (13 percent) in the group aged 50-59 and much higher in the aged 60 and older group (31 percent) than in those under 50 years old (8 percent). For the other extreme, 24 percent of the group aged 50 to 59 and 30 percent of the group aged 18 to 19 were heavy drinkers, as compared to only 7 percent of those aged 60 and older. The proportions of male heavy drinkers were consistently much higher than the female heavy drinkers in all age groups.

Among the elderly, alcohol-related problems were considerably less frequent than among younger members of the population. While relatively few persons over age 60 reported being intoxicated or driving after drinking excessively, rates were still high in the group aged 50 to 59.

Drinking problems did not appear to increase under the stress of widowhood. For men aged 50 to 59 and aged 60 and older the rates of heavy drinking were 13 and 3 percent, respectively, among the widowed, as compared to 27 and 10 percent, respectively, among those who were married. The heavy drinking rates among elderly women regardless of status were negligible. In contrast, in the group aged 18 to 49, the rate of heavy drinking among the nonmarried was about twice the rate among the married.

Retirement did not appear to be related to an increased level of heavy drinking. Among those aged 60 or older, the unemployed, most of whom were retired, were only half as likely to be heavy drinkers (6 percent) as were the employed (12 percent). For men aged 50 to 59, however, unemployment was significantly related to heavy drinking. Unemployed males were twice as likely to be heavy drinkers (71 percent) as were employed males (36 percent). Among those aged 18 to 49, unemployed males were also more likely than employed males to be heavy drinkers (59 percent versus 44 percent).

CONCLUSIONS

Findings suggest that the rates of drinking, heavy drinking, and alcohol-related problems decrease markedly as age increases. The large difference in heavy drinking between men aged 50 to 59 and those aged 60 or older may indicate that many male heavy drinkers approaching their elderly years die before reaching old age; this view must be confirmed through longitudinal studies. However, 24 percent of the men in their sixties were heavy drinkers. No evidence supports the theory that stresses associated with aging (i.e., widowhood and retirement) are accompanied by increases in problems related to drinking. Although lower than among the younger age groups, the heavy drinking rate among males over age 50 is still high enough to have potentially serious consequences for the health and well-being of the aging males.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	28

PURPOSE

Alcohol use and abuse by aging persons have been frequently overlooked in both gerontological and alcohol literature. For that reason, the present study examines the demographics of aging and of alcohol abuse and develops a theory to explain the relationship between aging and alcohol consumption.

SUMMARY

The fastest growing segment of the population in the United States is made up of people over the age of 65, and of the approximately 22 million people in this age group, 95 percent are living in the community. A long life expectancy is a modern achievement that will contribute to the increasing number of "young old" persons who seek meaningful ways to use their retirement time. Older persons tend to live in cities (70 percent), particularly in Florida, California, Kansas, Nebraska, Iowa, Missouri, Oklahoma, and Texas.

Research in the field of social gerontology has not systematically examined drug and alcohol abuse among the elderly despite the increasing significance of the problem. Existing evidence does indicate, however, that certain groups of the elderly (i.e., men and single, divorced, or

widowed persons) are more likely than the elderly population in general to develop alcoholism problems.

Aging in industrialized, youth-oriented societies such as in the United States requires adjustment and coping by the elderly. Retirement often represents a life crisis for the aging person, leading to status-role ambiguities and conflicting role expectations. Social isolation, age segregation, and inadequate social participation characterize substantial numbers of older persons.

One of the most common explanations of alcohol abuse at any age is that the alcohol abuser is attempting to cope with external stresses of life or with feelings of low status, low self-esteem, normlessness, or a combination of these factors. The sudden life changes and mental/emotional crises of "young old" persons may make them more susceptible to alcohol abuse than healthy, productive younger persons.

Given these circumstances, social control theory may represent a valuable framework for studying alcohol abuse among aging or elderly persons. According to the theory of Hirschi (1969), deviant acts such as alcohol abuse result when an individual's bond to society is weak or broken. The principal elements of the individual's bond to society include attachment to conventional persons, commitment to time spent on conventional activities and perception of that commitment, involvement of individuals in conventional activities and satisfactory leisure entertainments, and belief in the validity of society's rules. Any of these factors may combine to limit the extent of an individual's deviance. The four factors discussed can be viewed as the basis for whether or not an elderly person becomes an alcohol abuser. In using this theory to interpret reasons for alcohol abuse among the elderly, however, the researcher must take care to control for a variety of other potentially influential factors, such as sex, age, ethnicity, religiosity, social class, physiological health, consumption of drugs other than alcohol, mental health, and marital status.

The issue of causality is crucial to a social control approach: it is uncertain whether an elderly person's beliefs about drinking are a primary cause for strong attachment to others who share the same beliefs or whether the conventional attachments are responsible for the beliefs. Furthermore, the control theory does not account for the presence of social isolates who chose not to abuse alcohol. Finally, researchers must differentiate geriatric alcoholics who develop a drinking habit late in life as a response to aging from those with a lifelong alcohol abuse problem.

CONCLUSIONS

Alcohol abuse may be better explained when research is accomplished within the framework of a sociological theory, such as social control theory, which interprets the individual's behavior in a social context. It is hypothesized that elderly alcohol abuse may be related to the extent of attachment to conventional others, the extent of commitment to conventional goals or aspirations, the extent of involvement in conventional activities, and the degree of belief in the validity of conventional norms. Essential to theory development, however, is the recognition and identification of elderly alcoholics by their physicians. Reluctance of physicians to designate patients as alcoholics may further decrease attachment of elderly patients to conventional others and activities.

DRUG	Alcohol; narcotics
SAMPLE SIZE	5,500
SAMPLE TYPE	Abusers in treatment
AGE	Mature adults; aged (55 and older)
SEX	Both
ETHNICITY	White; black; Native American
GEOGRAPHICAL AREA	South Carolina
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Treatment program intake forms
DATE(S) CONDUCTED	1976
NO. OF REFERENCES	11

PURPOSE

Until recently, the elderly substance abuser has been viewed as little more than an innocuous social element warranting neither investigation nor effective substance abuse programs. This neglect has resulted from nearly exclusive focus on narcotics addiction, which is rare among older persons, and on misuse of substances by young, social users. However, new interest in the aged abuser has been sparked by challenges to Winick's (1962) maturing out theory and by broadening of the scope of research from drug abuse to substance abuse.

To supplement existing literature, this study examines characteristics of elderly abusers and their drugs of abuse, means of identifying elderly substance abusers, and the response of an institutionalized treatment system to elderly abusers.

METHODOLOGY

Study data derived from intake forms of 5,500 individuals 55 years of age and over who were admitted to programs administered by the South Carolina Commission on Alcohol and Drug Abuse (SCCADA) in 1976.

RESULTS

Subjects were predominantly male (86 percent), white (82 percent), and unemployed (62 percent). About 40 percent had no more than a grade-school education, one-third were married, and 37 percent had gone through some form of marital dissolution. The most frequently abused substance was alcohol (96 percent).

The elderly entered treatment programs through self-referral (25 percent), through family and friends (21 percent), through social control agencies (21 percent), and through other alcohol and drug programs (20 percent). Few referrals came from social service agencies and the medical community, perhaps because these agencies refused to recognize their limited ability to deal with the problems they encounter, were not aware of the treatment possibilities, or were competing with each other. In any case, cooperation between the agencies and the SCCADA appeared to be minimal.

Given the situation of the elderly, treatment must usually entail primary measures for substance abuse combined with secondary measures for physical and psychological problems. However, almost half of the clients referred from SCCADA received no primary referrals, 30 percent received primary but not secondary referrals, and 22 percent received both primary and secondary referrals. Only two categories were frequently used as primary referral services: drug and alcohol programs and medical facilities. These composed almost one-half of all primary referrals. Once inside the system, one-half of the clients were treated by the designated State agency.

CONCLUSIONS

Findings suggest that substance abuse among the elderly is primarily a problem of excessive alcohol consumption. Present modalities appear to be inadequate to meet the holistic needs of the elderly abuser. Major efforts will have to be made to address the problem properly.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	None

PURPOSE

Among elderly persons, there are two distinct groups of misusers of alcohol. The first group consists of social drinkers who use alcohol in moderation but whose use requires their continued functioning. Such individuals may compromise their personal safety by drinking and driving, mixing alcohol with drugs, or even drinking and walking. The second group consists of chronic users of large quantities of alcohol. This group includes long-term drinkers and persons who began drinking as a reaction to the stresses of aging and who are generally responsive to appropriate intervention.

This paper discusses criteria developed by the National Council on Alcoholism (NCA) for the early recognition of alcoholism and describes the physical and psychological complications of alcohol use.

SUMMARY

Alcohol depresses different functional levels of brain activity to produce a range of effects starting with mild social disinhibition to obnoxious buffoonery to sedation, sleep, and finally unconsciousness. Alcohol interacts with a wide range of medications the individual may be taking.

While providing alcohol has been associated with observations of improved sociability in the aged, the serious drawbacks of alcohol use, including the potential for falling, require judicious consideration before alcohol is introduced into an elderly patient's regimen.

The NCA criteria for early recognition of alcoholism include evidence of the alcohol withdrawal syndrome, evidence of tolerance to alcohol through the ability to consume large quantities without becoming noticeably drunk, and alcoholic blackouts involving a loss of memory but not of consciousness. Other signs of alcoholism are the presence of diseases associated with alcohol, continuation of drinking despite strong medical or other contraindication, and the presence of alcohol on the breath when the patient arrives for an appointment.

Although alcoholism is usually the last consideration given when a physician is evaluating a patient's medical complaint, alcohol may be a major contributing factor in the medical condition. Alcohol can raise or lower blood sugar levels, causing hypoglycemia or elevated blood sugar. Even one or two drinks can contain enough alcohol to raise the blood sugar levels in some diabetics. Moderate alcohol consumption also causes alterations in fat metabolism and the production of fatty deposits in the liver, reducing the liver's ability to detoxify substances. Different patterns of alcohol consumption can produce either increases or decreases in the metabolism of drugs such as barbiturates, warfarin, phenytoin, tolbutamide, and isoniazide. Cirrhotic liver disease, characterized by a liver that is shrunken, hardened, and dysfunctional, may lead to hepatic coma and death.

Any amount of alcohol will irritate the gastrointestinal tract to some extent. Chronic alcohol consumption leads to peptic ulcer disease, colitis, increased incidence of oral and gastrointestinal cancer, pancreatitis, and death. Irritation from gastritis can impair absorption of nutrients and compromise the nutritional status of elderly persons with poor nutrition. Chronic alcohol ingestion severely alters nutritional homeostasis, causing vitamin deficiencies and fluid and electrolyte imbalances. The Wernicke-Korsakoff syndrome is one of the more dramatic illustrations of such deficiencies. Anemia and a variety of neuropathies also occur as a result of nutrient deficiencies.

Alcoholic patients are often erroneously labeled as epileptics because alcohol withdrawal seizures mimic epileptic or major motor seizures. It is also often difficult to determine whether alcohol use is the cause or the result of certain psychiatric problems. Alcohol can intensify mental illness by precipitating psychosis, worsening depression, and stimulating mania. Moderate alcohol use also interferes with a person's normal sleep pattern, decreasing the dream state of sleep. Sleep medications given to deal with this problem have only a temporary effect. Bizarre behavior in mannerisms and speech may also be caused by alcohol use.

CONCLUSIONS

Many cases of elderly alcoholism go unrecognized. Common treatment approaches for alcoholism include behavior modifications, psychotherapy, and deterrence and aversion therapies. Alcoholics usually fail several therapies, often repeatedly, before a certain combination is successful. While therapy may aim for complete abstinence, a decrease in the number and severity of alcoholic binges may be a more realistic goal. Therapies should aim to minimize the medical, psychological, and social problems induced by alcohol.

DRUG	Alcohol
SAMPLE SIZE	6,411
SAMPLE TYPE	Junior and senior high school students; adults
AGE	Adolescents; young adults; mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Boston, Massachusetts; cross-sectional
METHODOLOGY	Correlational study; retrospective survey
DATA COLLECTION INSTRUMENT	Interviews; questionnaires
DATE(S) CONDUCTED	1974
NO. OF REFERENCES	14

PURPOSE

Measures of the frequency and quantity of alcohol consumption are usually combined to yield arbitrary categories of heavy, moderate, and light drinkers. However, several studies have shown that the frequency of consumption is uncorrelated with the quantity of consumption. This study treats frequency and quantity separately and examines the quantity and frequency of alcohol consumption by age in samples of adults and junior and senior high school students.

METHODOLOGY

Data were collected in 1974 from a sample of 794 adults in metropolitan Boston and a sample of 5,617 junior and senior high school students who took part in a national survey. The Boston sample involved a stratified, equal-probability selection of housing unit clusters and eligible respondents within households. The 794 adults were grouped in 5 age categories: 107 men and 94 women aged 18 to 25, 77 men and 117 women aged 26 to 34, 83 men and 119 women aged 35 to 50, 56 men and 55 women aged 51 to 62, and 45 men and 41 women aged 63 and over. Respondents were asked to indicate the frequency of drinking and the average number of drinks consumed on a typical occasion. For each type of beverage (beer, wine, distilled spirits), five frequency categories and nine quantity categories were used.

Comparable data were available from the national student survey, which involved a stratified two-stage sample in which questionnaires were self-administered to small groups of students in school classrooms. A total of 5,617 of the 13,122 respondents matched the adult survey criterion of drinking at least once a month.

The data are presented on the assumption that the drinking estimates are general enough not to be appreciably affected by differences in survey method.

RESULTS

The frequency of drinking increases with advancing age. No evidence exists of a decline in the frequency of drinking with advancing age, although drinking levels off to 15 days per month at age 35 and over in men and to 10 days at age 51 and over in women. Adults consume alcohol more frequently than do adolescents.

Based on the beverage most heavily used by each respondent, the mean number of drinks on a typical occasion increases with age among adolescent students and generally decreases with age among adults. Adolescents report more drinks consumed per typical occasion than do adults.

CONCLUSIONS

The frequency of drinking does not seem to decrease with age though the mean number of drinks on a typical occasion does decrease with age in adults. Although it is commonly held that adults tend to underreport actual alcohol consumption, a contrasting phenomenon may occur for adolescents. They may overreport the number of drinks consumed because they associated drinking with adult status. The differences revealed in this study probably do not result from reporting bias and differences in methodology, however. The higher frequency levels of adults in comparison with adolescents are consistent with the increased exposure with increasing age to alcohol and opportunities to drink. Both the average quantity consumed and the frequency of consumption independently define age-related drinking practices.

Khantzian, E.J. Organic problems in the aged: Brain syndromes and alcoholism. Discussion: On the nature of the dependency and denial problems of alcoholics. Journal of Geriatric Psychiatry, 11(2):191-202, 1978.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Alcoholics
AGE	Adults
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Not applicable
DATA COLLECTION INSTRUMENT	Theoretical/critical review
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	7

PURPOSE

This paper comments on David J. Myerson's description of four major areas of loss for alcoholics as they grow older and as a result of their drinking. These areas are the loss of health, the loss of relationships, the loss of employment, and the loss of freedom through arrest or court procedures. In contrast to Myerson's emphasis on the factors of intention, choice, and motivation as being crucial in determining change in the alcoholic's life, this paper focuses on the alcoholic's dependency and denial in relation to developmental problems. These problems include managing feelings and impairments in "self-care" functions. Treatment implications for the alcoholic, especially the elderly alcoholic, are also discussed.

SUMMARY

The known self-destructive behavior, in terms of the risk of suicide, among alcoholics indicates impairments of ego structure and function rather than intentions and motivations. Alcoholics are poorly equipped to deal with their feelings and thus depend upon others and the effects of

alcohol to cope with their emotions and with problems in everyday life. The alcoholic's dependence on others and on alcohol is caused by the need to compensate for impairments and deficits in psychological structure. In the absence of alcohol and the dependent attachment to people, the alcoholic may choose suicide as an alternative.

Similarly, alcoholics' denial of their disease results from ego deficits rather than from conscious or unconscious destructive impulses, intentions, and behavior. Many drug-dependent and alcohol-dependent persons lack normal cautionary responses to hazards and thus complicate and even destroy their lives. Instead of exhibiting behavior that is motivated or driven, alcoholics are likely to be impaired in self-care ego functions that would enable them to appreciate, anticipate, or correct for the dangerous involvements with alcohol.

A view of the alcoholic's dependency and denial problems as more a problem of ego impairment than a problem of motivation or choice permits greater possibilities of influencing alcoholics to accept help. Physicians should be more active in advocating not only the necessity for treatment but also the type of treatment. Four general treatment alternatives exist: confinement, Alcoholics Anonymous (AA), psychotherapy, and psychotropic drugs.

Alcoholics should be confined for treatment to permit safe and quick detoxification and to enable caretakers to deal with those who are incapable of caring for themselves. Few alcoholics will stop prolonged or protracted heavy drinking on their own, even with much family support and drug substitution to ease withdrawal. Even in severe cases, confinement has produced surprising degrees of return of function. With adequate community supports, including selective use of drugs, many alcoholics may eventually resume life in the community.

Alcoholics Anonymous is one of the best-established forms of treatment and rehabilitation, due to its nurturance, immediate acceptance, support, and structuring. However, many or most alcoholics do not consider AA or do not believe it to be acceptable. AA has only 250,000 to 300,000 members in continental North America, even though there are 5 to 10 million individuals in the United States with alcohol problems.

Psychotherapy is a much more acceptable and expected form of help to many alcoholics, especially where AA is the only other widely available form of help. Group psychotherapy should also be considered, although it is threatening to some. Abhorrence of groups may be the reasons some alcoholics avoid AA. In individual psychotherapy, therapists should generally avoid passivity and should emphasize structure, continuity, empathy, and activity. Although couples therapy has potential dangers, it can be useful once drinking is controlled.

Psychotropic drugs have a legitimate place among the treatment alternatives for alcohol problems, although much controversy exists over this. Drug therapy often serves as an adjunct to other treatments, especially for older alcoholics. Tricyclic antidepressants and phenothiazines have been shown to be useful, as has lithium. Antianxiety agents have sometimes proved useful, but their use remains the most controversial because of their cross-tolerance with alcohol and the similarity to alcohol of their psychopharmacologic effect.

CONCLUSIONS

Alcoholics do not necessarily accept or comply with available or recommended treatments and may continue with their destructive behavior. However, caregivers do not yet know which approaches are most appropriate for various types of alcoholics at various stages of their illness. Further research and clinical trials on this subject are needed.

Schuckit, M.A.; Morrissey, E.R.; and O'Leary, M.R. Alcohol problems in elderly men and women. Addictive Diseases: an International Journal, 3(3):405-416, 1978.

DRUG	Alcohol
SAMPLE SIZE	377
SAMPLE TYPE	Alcoholics admitted to a detoxification center or an inpatient alcohol treatment program
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Seattle, Washington
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews; questionnaires
DATE(S) CONDUCTED	September 1975-July 1976
NO. OF REFERENCES	11

PURPOSE

Although the literature on alcoholism in the elderly is scant, it would appear that both male and female elderly alcoholics show greater life stability than younger alcoholics, and that if older alcoholics are simply younger alcoholics at a later point in time, the older group should display more serious problems over a longer time period. This study examined the course of alcoholism in two subpopulations of elderly individuals, one consisting of men and the other of women, and provides an indirect test of these assertions. The findings regarding older men and women are related to those for younger patients from the same population.

METHODOLOGY

The samples were two consecutive series of patients seen in two different treatment settings. The first group consisted of 191 women admitted to the King County Detoxification Center in Seattle, Washington, between March and July 1976. Each eligible woman was interviewed within 24 hours of entering the detoxification facility. The structured interview covered demographic characteristics, milestones of drinking, psychiatric history, family history of psychiatric and drinking problems, drug history, and levels of social functioning. The 30 older alcoholic women were 55 or older; those under age 55 belonged to the younger cohort.

The second group consisted of 186 men consecutively admitted to the inpatient alcohol treatment program at the Seattle Veterans Administration Hospital from September 1975 to June 1976. The intake questionnaire formed the basis for the present data analysis. The questionnaire was self-administered and covered the same basic topics as the women's interview.

The most appropriate comparisons are between older and younger patients within the same facility, since the samples came from such different treatment settings. Statements comparing older men and women should be viewed with caution, since the data are merely suggestive.

RESULTS

Older women represented 16 percent of the women's sample and averaged almost 61 years of age versus 39 years for the younger women. The older sample demonstrated more life stability, with fewer antisocial problems in younger years, and lower rates of drug use. Older women also showed less psychiatric treatment and lower rates of suicide attempts. The older women did not begin to have alcohol difficulties until after age 40 and averaged 2 years of alcohol abuse until the first hospitalization. The older women had insignificantly lower rates for almost all alcohol-related problems, including automobile accidents.

The older men comprised 24 percent of the total sample and were closer in mean age to the younger group than were the women. Older alcoholic males were more likely to be white and less likely to be divorced than younger men. The older men had 15 years of alcohol difficulties before the first hospitalization. Older men also had lower rates for most alcohol-related difficulties than did younger men.

Both older men and older women showed greater life stability, onset of alcohol problems after age 40, lower rates of most alcohol-related difficulties, and fewer psychiatric problems than their younger counterparts. The older women were older as a group than the elderly men; many more of the men were currently married than were women. Older women had a greater tendency to use more drugs, especially barbiturates, stimulants, and opiates. Older alcoholic men first had trouble with driving a car and public drinking and soon developed problems with marriage, job stability, and drunken driving. Older women first experienced public drunkenness and being fired, with hospitalization coming quickly thereafter and alcohol-related accidents or separation and divorce occurring late in the course of the alcoholism.

CONCLUSIONS

Older individuals are not uncommon in alcoholism treatment samples. Sixteen percent of the women who presented to the detoxification facility and 24 percent of the men at the Veterans Administration Hospital entered treatment for alcoholism at age 55 or older. The characteristics of elderly alcoholic men and women are quite similar and resemble information from other samples in the manner in which they differ from younger groups. An unexpected finding is that the older alcoholic does not experience alcohol-related problems for many more years than does the younger counterpart. In the older samples of both men and women, it appeared that alcohol problems began in mid- to late-life and were not just a progression of early alcoholics living into old age. However, the role, if any, of the stresses of older age is unknown. Further information should be gathered using a wider variety of samples.

Wood, W.G. The elderly alcoholic: Some diagnostic problems and considerations. In: Storandt, M.; Siegler, I.C.; and Elias, M.F.; eds. The Clinical Psychology of Aging. New York: Plenum Press, 1978. Pp. 97-113.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Alcoholics
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	50

PURPOSE

Alcoholism is a serious problem in the elderly population and is complicated by the special physical and psychological problems that are sometimes associated with aging. Until recently, alcoholism in the elderly has not been considered a condition warranting special attention because of declining alcohol consumption with advancing age, because of poor treatment prospects for elderly alcoholics, and because of the lack of identification criteria appropriate to the elderly individual. Although the alcoholism rate does decline with advancing age, estimates suggest that about 18 percent of the total population being treated for alcohol abuse are 55 years old or older. Alcoholism is thus a real problem in aging individuals that often goes unrecognized and untreated. The present study reviews the literature to outline the effects of alcohol on the aged and to provide guidelines for diagnosing the elderly alcoholic.

SUMMARY

Effects of alcohol. Alcohol and other drugs have more pronounced behavioral and physiological effects on the older individual than on the younger person. For instance, a higher level of alcohol is present in the blood of older individuals than in the young when administered equal doses of alcohol based on body weight, probably because of changes in body composition. Changes in brain chemistry have also been observed in autopsy samples treated with alcohol.

Clinically, excessive consumption of alcohol can result in pathological changes in various organ systems of the body and in malnutrition, thereby exaggerating pathological changes frequently occurring in the elderly. Moreover, these typical pathological changes can be confused with alcohol-induced changes and thus complicate diagnosis. Also, older individuals tend to take many medications that, when combined with alcohol, can lead to coma or death.

Diagnosis. Examination of the diagnostic criteria developed by the National Council on Alcoholism shows that many of the psychological, behavioral, and clinical symptoms of alcoholism occur frequently in elderly individuals who do not have a drinking problem. For example, gastrointestinal disorders, brain damage, and cardiovascular disease all show an increase in frequency in older adults. Furthermore, the criteria are strongly weighted toward factors that are significantly associated with the elderly population, such as depressive or mood-cyclic disorders and changes in employment, economic, and marital status. For these reasons, the probability of an elderly alcoholic being properly diagnosed is very low.

To complicate matters further, several different types of elderly alcoholics have been identified. In long-standing (chronic) alcoholics, excessive drinking may be associated with primary factors such as personality traits. The situational alcoholic drinks in response to reactive factors such as loss of a spouse, loneliness, or retirement, which are connected with the traumas of aging.

Chronic alcoholics must be differentiated from situational alcoholics to facilitate treatment. The chronic alcoholic exhibits psychopathological symptoms; depressive traits; and a history of employment problems, police problems, and marital instability. The situational alcoholic may show none of these symptoms. Frequency and amount of alcohol used, type of beverage consumed, and effects of alcohol on the individual's performance are fairly stable for the chronic alcoholic but change significantly for the situational alcoholic. Amount consumed must be interpreted cautiously in diagnosing elderly alcoholics, as elderly individuals have a decreased tolerance for alcohol.

Alcoholics with organic brain syndrome. Prolonged and excessive consumption of alcohol can result in pathological changes in the central nervous system and in the peripheral nervous system (e.g., peripheral neuropathy). Several central neurological diseases have been attributed to excessive alcohol consumption (e.g., cerebellar cortical degeneration, central pontine myelinolysis, Marchiafava-Bignami's disease, and cerebral degeneration, with the most common being Wernicke-Korsakoff syndrome). The nutritional deficiencies so often present in the elderly alcoholic may be a primary cause of these conditions.

Brain damage also becomes common with advancing age in the general population, so it is sometimes difficult to differentiate the elderly alcoholic with organic brain syndrome (OBS) from the elderly nonalcoholic with OBS. In general, OBS alcoholics show fewer psychiatric symptoms than OBS nonalcoholics (e.g., hallucinations, delusions, and social withdrawal). OBS alcoholics generally perform better on a variety of measures such as the Wechsler Memory Scale and some tests of the Halsted-Reitan Neuropsychological Test Battery. Even though OBS alcoholics are generally younger than OBS nonalcoholics, the mortality rate tends to be about the same for both groups, suggesting that OBS alcoholics have more serious health problems than OBS nonalcoholics. As senile or arteriosclerotic brain damage may complicate the situation still further, an accurate drinking history of each patient is essential for diagnosis.

As would be expected, OBS alcoholics are more cognitively impaired and exhibit more psychiatric symptoms than alcoholics without signs of OBS. Furthermore, non-OBS alcoholics have fewer serious health problems and have a lower mortality rate than OBS alcoholics. OBS alcoholics also have a tendency to live alone and to have few employment and nontraffic police problems.

CONCLUSIONS

Alcoholism is a serious problem in the elderly, especially because of the physical and psychological effects of aging. Alcohol problems and aging-related pathological conditions may be difficult to differentiate and may interact with and exacerbate each other. Few agencies working with alcoholics are aware that elderly alcoholics require special consideration. Even fewer agencies have special programs for such individuals. There is thus an immediate need to increase awareness among clinicians and the public that alcohol abuse is a real problem among the elderly. Physician education could play a vital role in detecting alcohol abuse in elderly individuals. Furthermore, knowledge of an individual's drinking patterns over the lifespan might serve as a clue in predicting and preventing excessive drinking when the individual is older.

Blusewicz, M.J.; Dustman, R.E.; Schenkenberg, T.; and Beck, E.C. Neuropsychological correlates of chronic alcoholism and aging. The Journal of Nervous and Mental Disease, 165(5): 348-355, 1977.

DRUG	Alcohol
SAMPLE SIZE	60
SAMPLE TYPE	Alcoholics and normal controls
AGE	Young adults; mature adults; aged
SEX	Male
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Salt Lake City, Utah
METHODOLOGY	Comparative study; correlational study
DATA COLLECTION INSTRUMENT	Selections from the Reitan Indiana Neuropsychological Battery and others
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	27

PURPOSE

The neuropsychological changes accompanying chronic alcoholism and aging have been separately investigated to a significant extent. However, relatively little attention has been devoted to how similar the changes for these two factors may be. The neuropsychological literature on chronic alcoholism and aging provides some evidence that a search for similarities would be fruitful. Alcoholism in younger subjects may, in fact, resemble or be conducive to premature aging of adaptive abilities.

The present study investigates neuropsychological functions in young normal, young alcoholic, and elderly normal groups by comparing the groups with regard to these functions.

METHODOLOGY

The study sample consisted of three groups of 20 male subjects. The first group (young normal) contained 16 nondrinkers and 4 social drinkers with a mean age of 31 and a mean educational level of 13.6 years. The second group (young alcoholic) encompassed 20 problem drinkers selected from inpatient and outpatient alcoholism rehabilitation centers in the Salt Lake City, Utah, area, with a mean age of 33 years, a mean educational level of 12.2 years, a mean duration of

problem drinking of 13.3 years, and a mean period of abstinence of 37 days. This group was divided into 13 severe and 7 nonsevere alcoholics with 15.1 and 11.5 years of problem drinking, respectively. The third group (elderly normal) consisted of 16 nondrinkers and 4 social drinkers with a mean age of 71 years and a mean educational level of 11 years. All subjects belonged to the lower middle class and were without neurological problems.

Eight tests were drawn from a neuropsychological battery developed for this study and from the Reitan Indiana Neuropsychological Battery and were administered to each subject on an individual basis. They include the Spiral Aftereffect Test (SAE), the Complex Reaction Time Test (CRT), the Graham-Kendall Memory-for-Designs Test (MFD), the Category Test, the Tactual Performance Test (TPT), the Trail-Making Test (Trails), the Finger Oscillation Test (Tapping), and the Rhythm Test. Two single-factor analyses of variance were performed on the scores from each test, once on the total alcoholic sample and once on the severe and nonsevere groups separately.

RESULTS

The young normal group performed significantly better than the elderly normal group on all tests and significantly better than the total alcoholic sample on the MFD, Category, TPT-Time, TPT-Memory, TPT-Location, and Trails-B tests. The total young alcoholic sample performed better than the elderly normal group on all tests except Category and TPT-Memory.

While the young alcoholic groups did not differ statistically from each other on any test, the young normal group performed significantly better than the severe group but at a level equivalent to that of the nonsevere group on Category, TPT-Time, TPT-Memory, TPT-Location, and Trails-B tests. Furthermore, the nonsevere group performed significantly better than the elderly normal group, while the severe group did not on Category and TPT-Location.

With regard to general level of neuropsychological functioning, the young normal group was significantly superior to the other groups, and the total alcoholic sample was similarly superior to the elderly normal group. Furthermore, the nonsevere group was superior to the elderly normal group at a higher level of significance than was the severe group. Neither the young normal nor the nonsevere alcoholic group were classified in the brain-damaged category, while both the severe alcoholic and elderly normal groups were so classified.

CONCLUSIONS

Results indicate a definite general decline in neuropsychological functioning with aging and suggest a similar tendency with alcoholism. The tendency seen with alcoholism is least apparent in fundamental sensory-motor functions and the perceptual functions of vision and audition and most apparent in short-term memory and abstract reasoning (i.e., higher mental processes). The pattern of deficits implies subtle and diffuse changes in the state of the cortex rather than severe peripheral or focal deterioration. Short-term memory and reasoning problems would be expected to appear first as a consequence of aging changes, and to this extent, deficits seen in young alcoholics resemble those found in elderly populations. The poor performance of the total alcoholic group is attributable to the performance level of the severe alcoholic group, especially on short-term memory, while the poor performance of the elderly is attributed to the aging process. Whether the apparent premature aging of young alcoholics becomes more prominent as they age chronologically is a matter for further research.

DRUG	Alcohol
SAMPLE SIZE	187
SAMPLE TYPE	Older workers; retirees
AGE	Mature adults; aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	New York City
METHODOLOGY	Multivariate analysis; correlational study
DATA COLLECTION INSTRUMENT	Questionnaires; interviews; drug use scores; Bradburn Affect index
DATE(S) CONDUCTED	March 1976-1977
NO. OF REFERENCES	205

PURPOSE

Although middle-aged and older workers (aged 40 and older) make up approximately 50 percent of the workforce in the United States, their concerns, problems, and potentials are often overlooked by industry and labor alike. Despite an increasing life expectancy, the amount of research undertaken on the drinking patterns of the elderly has been minimal. Previous evidence has indicated that alcohol consumption in general decreases with age; however, national health statistics, reports on alcohol abuse among workers, and the experience of those working with both the institutionalized and the independent aged all point to increasing alcohol abuse.

This pilot project, sponsored by the National Institute on Alcohol Abuse and Alcoholism, focuses on the relationship between retirement and alcohol use among older men and women. Retirement is viewed as a major event in the life of older persons, one necessitating adjustment to changes in income, social definitions, patterns of social interaction, and use of time. Alcohol is a component of this adjustment process.

The retirement-alcoholism relationship is interpreted in connection with a series of models to explain the aging process. The major categories of models are the engagement-withdrawal models, which argue that individuals reduce the number of their social relationships as part of an orderly social transfer of responsibility, and the social-self definition models, which explore the forces that cause older people to interact with each other as a group.

METHODOLOGY

The study sample consisted of 187 individuals, 45 years of age or older. Of the sample, 114 were employed persons aged 45 and older and 73 were retired persons, all of whom were at least 55 years of age. Study participants were recruited through the United Storeworkers, a firm in New York. The median age of workers was nearly 61 and of retirees, 69. Nearly three-fourths of the workers and four-fifths of the retirees were women. Most workers were married and living with their spouses. A significant minority of retirees were widowed. Moreover, significant income differences were apparent between subsamples: the median income of workers was nearly \$4,500 more than that of retirees.

Three separate instruments were developed for use in the study: an interview schedule for structured personal interviews with both employed and retired persons, a self-report questionnaire for employed persons, and a self-report questionnaire for retired persons. Computerized data were subjected to counts, cross tabulations, chi-square tests, and analysis of variance procedures.

RESULTS

Most of the sample consumed alcohol (88 percent), with a minority (12 percent) reporting drinking three or more times a week. Younger male subjects were the most frequent consumers of alcohol, while the infrequent users and abstainers were predominantly women. Infrequent users were also likely to belong to the older age grouping. Many of the older respondents (51 percent) reported that their current drinking was at about the same level as at age 50; 28 percent drank less now than when they were younger, while only 2 percent drank more. Whether the older respondent was working or retired appeared to make little difference in alcohol use. The most common reasons given for reduced drinking were the deleterious effects of alcohol on health and well-being and the decline in frequency of social situations in which drinking was an expected activity. The latter reason was especially typical for the sample retirees.

Infrequent users reported drinking on special occasions and at social functions. Frequent users reported more friendships with other frequent users than with moderate, infrequent, or nonusers. Conversely, infrequent users and nonusers reported that most of their friends were other infrequent users or nonusers.

Employed persons had many more friendships and social interactions with other workers than did retirees. Conversely, retirees saw other retirees more frequently than they saw workers. Respondents in good health, retirees, and alcohol users received higher levels on the activity index than their less healthy, employed, and abstaining contemporaries. Changes in leisure activity levels since age 55 were strongly associated with marital and work status. The maintenance or increase in activity levels was more common among married than among nonmarried respondents and among retirees than among older workers.

Younger, healthier, and more affluent male respondents reported drinking in the widest variety of social situations in which alcohol consumption would be appropriate. Health status emerged as the only variable strongly associated with two key indicators: a drug use score and the Bradburn Affect index.

Further research should consider the effects of health, income, work status, and sex differences on drinking and leisure use patterns; the impact of long-established leisure use and drinking patterns on current behavior; and the importance of the expectations of others for drinking patterns. To that end, an expanded exploratory study among several different subgroups of older persons is recommended, using a methodology similar to that used in the pilot study.

CONCLUSIONS

In many cases, alcohol problems may be precipitated or exacerbated by lifestyle changes at the time of retirement or by threats to personal and social adjustment associated with the loss of the work role. It is likely, however, that retirement may be only one of several age-related factors associated with adverse changes in drinking behavior or with continuation of drinking practices that increase the risk of alcohol-related problems with advancing years. Further study should be conducted on a variety of subgroups, taking into consideration such factors as employment status, work situation, and living situation.

Rathbone-McCuan, E.; Lohn, H.; Levenson, J.; and Hsu, J. "Community Survey of Aged Alcoholics and Problem Drinkers." DHEW Grant No. 1R18 AA0 1734-01. Final Project Report to Department of Health, Education, and Welfare by the Levindale Geriatric Research Center, June 1976.

DRUG	Alcohol
SAMPLE SIZE	695
SAMPLE TYPE	Persons living in community, high-rise apartment, nursing home, and domiciliary settings
AGE	Mature adults; aged (all 55 and over)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Baltimore, Maryland, Standard Metropolitan Statistical Area
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	1975
NO. OF REFERENCES	28

PURPOSE

To obtain more information about the patterns of alcohol consumption among the elderly and the problems older persons experience as a result of their drinking behavior, the National Institute on Alcohol Abuse and Alcoholism awarded a research grant to the Levindale Geriatric Research Center in 1975. This report presents the major findings and conclusions of their study, which was conducted in the Baltimore, Maryland, area.

METHODOLOGY

Personal interviews were conducted with 695 persons aged 55 and older who resided in community, high-rise apartment, nursing home, or domiciliary settings in the Baltimore Standard Metropolitan Statistical Area. These environmental settings represent the residential living arrangements maintained by the aged throughout the United States. The term "elderly" was defined as a person 55 years old or older because it permitted analysis of the development processes that occur throughout the latter stages of a person's productive life. For analytical purposes, the subjects were grouped into the "young old" (aged 55-69) and the "old old" (aged 70 and over).

Data were gathered on the sociodemographic, health status, service utilization, and social participation characteristics of the sample.

RESULTS

About 12 of 100 elderly persons had drinking problems or were alcoholics. Five-sixths of the problem drinkers were males. The highest proportion of those with problem drinking/alcoholism occurred in those living in the community and in domiciliary type settings, while the lowest proportion was among those living in high-rise complexes or nursing homes. The prevalence of problem drinking was 22 percent for the "young old" and 4 percent for the "old old." Problem drinkers were generally male; "young old"; high school graduates; single, divorced, or separated; unemployed; conservative Protestant; representative of all income levels; and living in community or domiciliary type settings.

Elderly problem drinkers and alcoholics generally reported poorer health and had more physical problems in their major body systems than did elderly normal drinkers. Elderly problem drinkers/alcoholics reported a number of drinking-related problems, including financial problems, family problems, health problems, police problems, and accidents; the average number of problems reported was four.

About 85 percent of all elderly problem drinkers/alcoholics were not receiving any type of service directly related to their drinking problem. Problem drinkers/alcoholics also reported minimal social participation, especially regarding encounters and the sharing of personal life experiences with family, friends, and relatives. Elderly problem drinkers/alcoholics were more alienated from both society and their peers than were normal problem drinkers, but they did express their willingness to become involved when necessary.

Alcoholics in treatment were indistinguishable from those living in the community in terms of demographic variables. However, proportionally more of those in treatment perceived themselves as heavy drinkers and used more services more often than those not in treatment.

CONCLUSIONS

The elderly are at risk of experiencing alcohol-related problems and need both intervention and prevention services. The needs of the elderly alcoholic should become a priority. Emphasis should be placed on providing the integrated services that are necessary to insure recovery. Alcoholism and geriatric services should be integrated to ensure both comprehensiveness and effectiveness of treatment. Institutional and noninstitutional services, including day care, are needed.

Schuckit, M.A., and Miller, P.L. Alcoholism in elderly men: A survey of a general medical ward. Annals of the New York Academy of Sciences, 273:558-571, 1976.

DRUG	Alcohol
SAMPLE SIZE	113
SAMPLE TYPE	Hospitalized alcoholics and medical and psychiatric patients
AGE	Aged
SEX	Male
ETHNICITY	Mostly white
GEOGRAPHICAL AREA	La Jolla, California
METHODOLOGY	Comparative study
DATA COLLECTION INSTRUMENT	Interviews; Memory-for-Designs test; Pfeiffer test; Mental Status questionnaire; Face-Hand test
DATE(S) CONDUCTED	November 1974 to February 1975
NO. OF REFERENCES	66

PURPOSE

Drinking problems in older people have received less attention than they warrant because of the relatively low percentage of drinkers over 65 years old (45 percent compared to 71 percent in the 30-to-49-year-old group), because many alcoholics die at a young age, and because of the substantial rate of spontaneous remission among alcoholics. The actual rate of alcoholism among the elderly is not even known. Estimates from surveys of the general population place the rate at between 2 and 10 percent, while reviews of patients in treatment show alcoholism rates to be between 5 and 50 percent for elderly psychiatric patients and between 5 and 15 percent for older medical patients.

Older alcoholics have been classified as to whether they are long-term or situational alcoholics and as to whether they have organic brain syndrome or not. There is relatively little information on the treatment of the geriatric alcoholic, because the older abuser is likely to be left out of treatment reviews for both geriatric and alcoholic patients. The present study reviews the rates and patterns of alcoholism among medical geriatric patients.

METHODOLOGY

The study sample encompassed 113 male patients 65 years old or older who were admitted consecutively to the acute medical wards of the La Jolla Veterans Administration Hospital (California) between November 1974 and February 1975. A 60-minute, structured interview was administered to each patient within 5 days of admission to the hospital. The tests included the Memory-for-Designs test, the Pfeiffer test, the Mental Status questionnaire, and the Face-Hand test. A 15-minute interview with each patient's resource person, usually a spouse, was also conducted. The 20 alcoholics identified in the sample were then compared with 29 psychiatric geriatric patients suffering from organic brain syndrome (OBS) and other illnesses and with 64 medical patients without diagnosable psychiatric illness. Of the 20 alcoholics, 11 percent had stopped drinking and were classified as inactive.

Statistical analyses were performed by chi-square test with Yates correction for continuity for categorical data. A two-tailed t-test was used to compare group means.

RESULTS

Specific problem scores were much higher for alcoholics than for the other groups, and rates for the 9 active alcoholics were usually higher than those for the 11 inactive alcoholics. Problems included health problems, marital problems, and alcohol-related driving problems. Inactive alcoholics had a higher rate of nontraffic police problems and of serious job problems than the other groups.

Active drinkers drank between 5 and 7 days a week and were more likely to smoke than the other group, including inactive alcoholics. All three groups showed equal chances of having been hospitalized in a psychiatric facility, but suicide attempt rates were slightly higher for the alcoholic group. Alcoholics consistently had higher levels of organic test impairment than did the normal group.

Compared to the other groups, alcoholics were younger, had been married more frequently, were more likely to be separated or divorced, had more schooling, were more often Catholic, and were more likely to be professionals. Alcoholics also had a greater history of social isolation and were less likely to have lived at their prehospital address for 5 years or more than the other patients.

Primary medical diagnoses for the three groups were similar except for chronic obstructive lung disease, which was more common in alcoholics, and heart disease, which occurred more frequently in the other groups.

Compared to alcoholics without OBS, OBS alcoholics were slightly younger, had less education, had a lower occupational level, had a greater tendency to live alone, had fewer nontraffic police problems, had fewer job problems, and had a much higher rate of serious health problems. Arrest rates and smoking rates were similar for the two groups.

When drinkers who had begun drinking before age 40 were compared to those who had begun drinking after age 40, late-onset drinkers were shown to be younger, more likely to be divorced or separated but less likely to be widowed, more likely to live alone, more likely to smoke, and less likely to have spent time in jail. Late-onset drinkers reported more drinking problems, driving difficulties, serious health problems, and marital difficulties than early-onset drinkers. Police problems and length of residence rates were the same for the two groups, but early-onset drinkers had slightly higher job problem rates.

CONCLUSIONS

Study findings set the alcoholism rate among the elderly in a general medical ward to be about 18 percent and indicate a high remission rate for alcoholics. Comparison of early- and late-onset drinkers indicates that the late-onset alcoholic may represent a separate type of alcoholism related to affective disorder. The study also found that OBS is most likely to occur in alcoholics who have had lower achievement in the past but a later age of onset of their problem drinking.

Geriatric alcohol abusers are clinically distinct from the other old-age psychiatric or medical patients, as previous literature has indicated. Both the high education level and the decreased

rate of cardiac disease of alcoholics are inconsistent with existing literature and require further study.

The profile of the elderly alcoholic presented may be useful as a warning of possible alcohol problems, although the information is not yet adequate for establishing a diagnosis. The physicians in this study, however, did remarkably well in identifying the active alcoholics.

Apfeldorf, M., and Hunley, P.J. Application of MMPI alcoholism scales to older alcoholics and problem drinkers. Journal of Studies on Alcohol, 36(5):645-653, 1975.

DRUG	Alcohol
SAMPLE SIZE	243
SAMPLE TYPE	Residents of a Veterans Administration facility: alcoholics; problem drinkers; nonalcoholics
AGE	Mature adults; aged
SEX	Male
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Comparative study
DATA COLLECTION INSTRUMENT	Minnesota Multiphasic Personality Inventory alcoholism scales
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	19

PURPOSE

Alcoholism scales derived from the Minnesota Multiphasic Personality Inventory (MMPI) can differentiate between previously diagnosed groups of alcoholics and control groups of nonalcoholics. Investigations of alcoholism scales have generally not contained intermediate groups with degrees of disturbance other than that of diagnosed alcoholism. Clinical psychologists working in institutions for older veterans would find it useful to know whether the MMPI alcoholism scales can detect persons who are not diagnosed as alcoholics but who have similar personality patterns.

This study was designed to determine whether alcoholism scales derived from the MMPI can differentiate older persons with disciplinary problems and older domiciled alcoholics from domiciled nonalcoholics with no disciplinary problems. The subjects were all men residing in a Veterans Administration domicile.

METHODOLOGY

The 243 subjects were divided into 3 groups: (1) 31 alcoholics with records of offenses indicating problem drinking, (2) 94 nonalcoholics with records of offenses indicating problem drinking (offenders), and (3) 118 nonalcoholics with no records of offenses (controls). Comprehensive

medical records were used to classify specific residents as alcoholics, while official domiciliary records were the basis for classification of the men as offenders. The alcoholics had a mean age of 58.9, while the offenders averaged 60.8 and the controls averaged 64.5.

The subjects had completed the MMPI as part of another study on hostility and control. The responses were scored in terms of the alcoholism scales of MacAndrew, Holmes, Hampton, and Hoyt and Sedlacek. The MacAndrew scale was scored both as the 49-item scale recommended by MacAndrew and as the 51-item scale used by Williams and others. Differences between the three groups were examined by analysis of variance. The Tukey multiple-range test was used to make multiple comparisons.

RESULTS

The MacAndrew, Holmes, and Hampton scales all showed significant results in the analysis of variance. The MacAndrew scale not only discriminated alcoholics from controls, but also discriminated the disciplinary offenders from controls, in both cases at the 1 percent level. The alcoholics and disciplinary offenders were not significantly different from each other. The Holmes scale also differentiated the alcoholic group from either the controls or offenders at the 1 percent level but differentiated the offenders from the controls only at the 10 percent level. When all subjects having MMPI F scores of 16 or more (suggesting invalidity in test responses) were excluded, the F ratio was somewhat higher and all three groups were significantly differentiated from each other.

The negligible correlation coefficients between the MacAndrew and Holmes scales for the alcoholic, offender, and control samples suggested that each scale provides independent information in separating the alcoholics or problem drinkers, or both, from the controls. For the Hampton scale, the offenders but not the alcoholics were differentiated from controls at a statistically significant level.

The low correlations between the MacAndrew scale and the traditional MMPI alcoholism scale, the Psychopathic Deviate scale, indicated that the scales share little common variance. The 49-item MacAndrew scale was 62 percent accurate in separating alcoholics from controls, which was similar to other results for a domiciliary population. The scale was 63 percent accurate in separating disciplinary offenders from controls. In contrast to MacAndrew's report that his scale had no correlation with age, a negative correlation was found for alcoholics among the present subjects. Negative correlations were also found between the Holmes scale and age in the alcoholic, offender, and control groups.

CONCLUSIONS

The MacAndrew and Holmes scales effectively discriminated domiciled alcoholics and disciplinary offenders from nonalcoholics. The scales appear to be of value in characterizing older alcoholics and disciplinary offenders. The Holmes and MacAndrew scales seem to measure different facets of personality. The Hampton scale may be most effective in identifying alcoholics who share some of the help-seeking features found in Hampton's standardization group of Alcoholics Anonymous members.

The personality traits and symptoms identified by the MacAndrew scale may diminish with advancing age. This finding, if replicated, would be consistent with Klopfer's (1965) comments based on Jellinek's (1946) findings that alcoholism is a minor problem among the aged since drinking declines after the age of 45. Future research should try to determine whether the decline in scores is due mainly to loss of symptoms or to some of the social activity oriented personality traits associated with alcoholism. The alcoholism scales might also be applied in studying the progression of symptoms in problem drinkers who have as yet not been diagnosed as alcoholics.

DRUG	Alcohol
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly alcoholics
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	11

PURPOSE

A number of studies have shown that the age incidence of alcoholism as reflected in psychiatric hospital admissions and in outpatient clinics peaks between the ages of 35 and 50, which suggests a decline in incidence with increasing age. However, a household survey conducted in Manhattan, New York, shows that the peak prevalence of alcoholism in 45- to 54-year-olds is followed by a second peak in the group aged 65 to 74. Thus, the prevalence of alcoholism as seen from psychiatric facility admissions may not reflect the frequency of alcoholism among the elderly in the community. The present study provides an overview of the literature on the actual prevalence of alcoholism among the elderly in a variety of circumstances.

SUMMARY

A study of patients newly admitted to the Harlem Hospital Center in New York City indicates that alcohol use and significant impairment of social, family, and occupation functioning were evident in 63 percent of the males and 35 percent of the females surveyed. Other studies of general hospital medical patients have produced rates of alcoholism ranging from 15 to 38 percent for men and up to 4 percent for women.

The problem of alcoholism among the elderly is not a strictly urban problem. The author's recent study of a suburban community mental health center indicates that 17 percent of the 87 elderly patients, out of a total of 1,636 admissions in the first half of 1972, were alcoholics.

Elderly alcoholics are also being arrested in the streets and charged with intoxication. Of 722 individuals age 60 and over arrested by the San Francisco police in 1970, 82.3 percent were charged with drunkenness.

A distinction must be made between geriatric alcoholics who began heavy drinking late in life and aging alcoholics who have been abusing alcohol for most of their adult years. Geriatric alcoholics who develop drinking problems in later life often do so as a reaction to the stresses of aging. They respond more readily than younger alcoholics to sympathy and a therapeutic regimen including antidepressant medication and socialization programs. The surviving alcoholics who have been drinking for many years have remarkable constitutions but often exhibit physical complications such as cirrhosis, seizures, chronic brain syndrome, and cardiac disorders. Nevertheless, long-term alcoholics also respond readily to a therapeutic environment.

The unwillingness of physicians to designate a patient as an alcoholic and the general feeling of helplessness about treating alcoholics are important parts of the problem. For example, the house staff at Harlem Hospital Center identified only 55 percent of the alcoholic patients on admission and 45 percent on discharge. The National Council on Alcoholism has set up criteria to assist physicians in the diagnosis of alcoholism. Better education of health care professionals in the recognition of alcoholism and its treatment potential is needed.

Nursing home consultants can assist staff in identifying basic causes for patients' lack of appetite and difficulties in sleeping so that alcohol is not used as an antidepressant. In spite of positive reports on the use of alcohol to improve ward sociability, certain considerations should be reviewed before the use of alcohol is established in nursing homes on a widespread basis. Alcohol is a potentially addicting drug that produces tolerance in the user. Susceptibility to the effects of alcohol may be greater in the elderly than in young patients, so tolerance may begin sooner and adverse behavioral reactions may be more common. There is also some question as to whether any drug is necessary to produce sociability. It should be noted that alcohol may actually inhibit the development of nursing homes as therapeutic communities and might even produce iatrogenic alcoholism.

CONCLUSIONS

Literature and observations indicate that alcoholism is a serious problem among the elderly living in the community and among elderly individuals who come to the attention of health, social, and law enforcement agencies. The problem can be treated successfully even in long-term elderly alcoholics if the proper therapeutic regimen and moral support are provided. Caution should be exercised when instituting socialization programs using alcohol in nursing homes. Working relationships between geriatric programs and alcoholism treatment programs could improve coordination for management of the elderly alcoholic.

DRUG	Alcohol
SAMPLE SIZE	100
SAMPLE TYPE	Elderly psychiatric patients
AGE	Aged (mean 68.28)
SEX	Both
ETHNICITY	76 percent white
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Descriptive study; comparative study
DATA COLLECTION INSTRUMENT	Interviews; psychological tests; Mental Status Schedule; functional capacity scale
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	13

PURPOSE

Some difference of opinion exists regarding the extent to which alcoholism constitutes a problem among the elderly. Certain individuals hold that heavy drinking is not a problem of the aged. Other researchers maintain that alcoholism constitutes a serious problem among older psychiatric patients. To further investigate this question, the present study examines the extent of alcoholism in brain-damaged and non-brain-damaged elderly patients in a comprehensive care demonstration project. Comparisons are also made between alcoholic and nonalcoholic brain-damaged groups.

METHODOLOGY

The study sample consisted of 100 persons 60 years old and older admitted consecutively to a county psychiatric screening ward. Their mean age was 68.28 years, and 35 percent were in the 60- to 64-year-old age group. A total of 60 percent were male; 76 percent were white. Almost half (48 percent) had a history of psychiatric hospitalization.

Each patient was examined shortly after admission by a multidisciplinary team consisting of a psychiatrist, an internist, a nurse, a social worker, and a psychologist. Social workers obtained

sociodemographic data and rated the family's role with regard to the patient. Mental status was measured with a structured psychiatric interview and the Mental Status Schedule and checked with multiple psychiatric diagnoses. The functional capacity rating used was adapted from a scale devised by Zeman (1947). Psychological tests administered included the Reitan revision of the Halstead-Wepman aphasia screening test, the Wechsler memory scale, the trail-making test, a tactual performance test, and the Goldstein-Scheerer concept formation test.

RESULTS

Of the 100 patients admitted, 44 were diagnosed as having some type of alcoholism. The diagnosis of alcoholism was primary for 36 patients and secondary for 8. Of the alcoholic patients, 17 showed no evidence of organic brain syndrome (OBS), while the others did. Most alcoholic patients had begun drinking in early adulthood.

Comparison of alcoholic and nonalcoholic OBS groups indicated that the alcoholic OBS group contained more males and was significantly younger. Family attitudes toward patients were significantly more positive for nonalcoholic OBS patients than for alcoholic OBS patients. The nonalcoholic OBS group had significantly higher scores than the alcoholic OBS group on the following scales: delusions-hallucinations, retardation-emotional withdrawal, suspicion-persecution-hallucinations, denial of illness, feelings-concerns, speech-disorganization, and social isolation. However, nursing care needs were not significantly different between the groups. While functional capacity of the groups was not related to alcoholism, cognitive impairment was; alcoholic OBS patients were less impaired than nonalcoholic OBS patients.

Alcoholic patients with and without OBS did not differ in age or family acceptance. However, the mortality rate during a 30-month followup period was higher for the alcoholic OBS group than for the alcoholic non-OBS group. The alcoholic OBS group had higher scores than the alcoholic non-OBS group on feelings-concerns, confusion-retardation, inappropriate or bizarre behavior, retardation-emotional withdrawal, and disorientation-memory scales. Nursing care needs were higher in the alcoholic OBS group, and functional capacity as well as cognitive impairment was markedly related to the presence of OBS.

Examination of differences between the groups with regard to racial identity, marital status, income, and visibility scales did not yield significant results.

CONCLUSIONS

The alcoholism rate (44 percent) in the psychiatric sample studied is higher than among elderly people in the general population. As a group, alcoholic individuals without OBS are in a relatively benign psychiatric state; there is little overlap between alcoholism and psychological disturbances other than OBS. Alcoholic OBS patients differ markedly from nonalcoholic OBS patients in the severity of OBS, type of psychiatric symptoms, family negativity, age, age at death, and cognitive impairment. OBS with alcoholism is also less likely than OBS without alcoholism to be accompanied by psychotic phenomena. Further, OBS patients with alcoholism are more likely than other patients to be rejected by their families. On the whole, alcoholic patients with and without OBS can be clearly distinguished from one another diagnostically.

DRUG	Alcohol
SAMPLE SIZE	103
SAMPLE TYPE	Psychiatric and geriatric patients with alcohol problems
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Great Britain
METHODOLOGY	Clinical observation; descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	1960s
NO. OF REFERENCES	7

PURPOSE

Difficulties of detection often lead to underestimates of the prevalence of problem drinking among the elderly. However, alcoholism has been shown to exist among the elderly. This paper describes the characteristics and causes of alcohol problems in elderly psychiatric and geriatric patients in England.

METHODOLOGY

The 103 subjects all had problems with alcohol and included 67 patients seen in psychiatric domiciliary consultations by one of the authors over the preceding 7 years or admitted to the regional alcoholism unit at St. Bernard's Hospital in Middlesex, England. The other 36 patients were seen by the other author as referrals to a geriatric unit, mostly at New Cross Hospital in London. Details of social background, patterns of drinking, and factors precipitating excessive drinking were collected. Information was also obtained from the patient and friends and relatives regarding the consequences of the drinking problem.

Most of the psychiatric group were between the ages of 65 and 70, while half of the geriatric patients were over age 80. Three-fifths of the patients were women. A total of 46 percent of

the psychiatric group and 36 percent of the geriatric patients lived alone, while 39 percent of the psychiatric subjects and 11 percent of the geriatric group lived with their spouses. Almost four-fifths of the geriatric patients were widowed. Both groups had a 9 percent incidence of marital breakup.

The psychiatric patients were initially referred because of their drinking, while only 12 of the 36 geriatric patients were in the hospital because of alcohol excess. Drinking problems were secondary features in 13 patients, while the other 11 were not admitted to the hospital.

Drinking patterns could be grouped into two broad categories. Group I were longstanding excessive drinkers and alcoholics who persisted in their drinking habits in old age. Group II were those whose previous social drinking was intensified by the physical, mental, or environmental effects of aging. Two-thirds of both the psychiatric and geriatric patients were in group I.

RESULTS

The most common precipitating cause of drinking problems, especially in group I, was habitual excessive drinking. Personality factors associated with longstanding pathological drinking in group I patients demonstrated neuroticism, self-indulgence, egocentricity, and a reliance on alcohol as a psychological support. The onset of dementia was associated with the onset of problem drinking in seven of the geriatric patients, six of whom had not had a prior drinking problem. Reactive factors such as bereavement and retirement precipitated excessive drinking in many patients. Loneliness and domestic quarrels were also factors for several patients.

The geriatric group tended to drink beer in accordance with their previous working-class drinking patterns, while psychiatric patients more commonly used distilled spirits.

The results of excessive drinking among the psychiatric patients were wide ranging and similar to those occurring in younger alcoholics. Among the 36 geriatric patients, excessive drinking caused deterioration in physical, mental, or social conditions. Self-neglect occurred in 22 patients; falls, in 12; excessive incontinence, in 5; an increase in confusion, in 11; paranoia or increased aggressiveness, in 4; more quarrels with family members, in 17; and marital breakups, in 3.

CONCLUSIONS

Since social drinking often declines in old age, the persistence of excessive drinking or its emergence in old age is pathological. While psychiatric patients were referred because of drinking problems, the common symptoms of alcoholism (social isolation, falls, malnutrition, general physical deterioration, and dementia) could often be missed in geriatric patients referred for other reasons. It is important for professionals to inquire about drinking, although the diagnosis may be revealed only when withdrawal symptoms occur. The preponderance of women in the present study suggests that there is a higher chance of encountering drinking problems among elderly women than among men. Environmental effects, particularly bereavement, loneliness, and inability of professional people to cope with retirement, were important in the drinking patterns of the group II subjects, whose problems emerged in old age. In contrast, group I patients represented the mainly psychopathological entity of alcohol excess.

Manipulation of the environment and improvement in the elderly person's medical condition can be beneficial in dealing with drinking problems in old age. Social support through home visits by social workers or other means, preretirement courses to help avoid a social vacuum, and timely transfer to a welfare home may all be valuable. It is important to detect problem drinking early and to provide full hospital and community services both to elderly patients and to their families.

Bailey, M.B.; Haberman, P.W.; and Alksne, H. The epidemiology of alcoholism in an urban residential area. Quarterly Journal of Studies on Alcohol, 26:19-40, 1965.

DRUG	Alcohol
SAMPLE SIZE	8,082
SAMPLE TYPE	General population
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	White; black
GEOGRAPHICAL AREA	Washington Heights District, New York City
METHODOLOGY	Retrospective survey; descriptive study
DATA COLLECTION INSTRUMENT	Interviews
DATE(S) CONDUCTED	1960-1961
NO. OF REFERENCES	21

PURPOSE

As a result of the growing acceptance of alcoholism as a public health problem, epidemiological studies are needed of alcoholism's prevalence and distribution among population subgroups. Knowledge of the magnitude of the problem and the particularly vulnerable groups can aid in a public health approach emphasizing both control and prevention.

This paper reports on an epidemiological survey of alcoholism conducted in the Washington Heights Health District of New York City in 1960 and 1961.

METHODOLOGY

The survey of alcoholism prevalence was part of a more general health survey conducted by the Columbia University School of Public Health and Administrative Medicine (New York). A two-stage stratified cluster sample was drawn. Interviews were conducted in 4,387 families covering 8,082 persons 20 years of age and over and representing 91 percent of the eligible dwelling units. A total of 17.8 percent of the sample were 65 years old or older. Alcoholism prevalence was measured primarily by questions concerning difficulties in living associated with drinking.

RESULTS

The overall alcoholism prevalence rate was 13 per 1,000, with a ratio of 3.6 men to 1 woman. The most vulnerable subgroups in the population were widowers (105 per 1,000) and divorced or separated persons of both sexes (men, 68 per 1,000; women, 19). Married men had a rate of alcoholism of 25 per 1,000 and married women, 8 per 1,000. Blacks had a higher rate than whites, with black women seeming to be particularly susceptible. Except for the low rate among Jews, religion seemed to be less associated with alcoholism prevalence than was race.

The alcoholics were spread fairly evenly throughout all age groups except those under age 25 and over age 75. The group aged 65 to 74 maintained the rate of previous age groups, a finding that was related to the number of elderly widowers who acknowledged a drinking problem. The rate in men was highest in this age group, while in women it was highest between the ages of 45 and 54. The alcoholism rate for all persons aged 55 to 64 was 17 per 1,000, compared to a rate of 22 per 1,000 for persons aged 65 to 74 and 12 per 1,000 for persons aged 75 and over.

Alcoholism tended to be concentrated among the groups with less education, lower personal earnings, poorer housing, greater occupational and residential mobility, and more chronic physical illness than adults in general. On various psychological measures, the alcoholics revealed marked evidence of emotional strain and impairment, especially with respect to guilt and depression.

CONCLUSIONS

The findings describe an urban, noninstitutionalized sample of persons presumed to be alcoholics who are functioning in the community but are socioeconomically vulnerable and psychologically under great stress. The incidence of alcoholism was probably underreported, as indicated by a cross-check with a psychiatric register. The need to rely on questions about difficulties in living associated with drinking as a means of determining the existence of alcoholism suggests the need for further research to develop and test new methods of identifying alcoholics in large population surveys. Such research is needed if alcoholism is to respond to public health measures.

DRUG	Alcohol
SAMPLE SIZE	1,000
SAMPLE TYPE	Alcoholic versus nonalcoholic residents of a Veterans Administration facility
AGE	Young adults; mature adults; aged
SEX	Male
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Biloxi, Mississippi
METHODOLOGY	Comparative study; retrospective survey; multivariate analysis
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	1959-1961
NO. OF REFERENCES	None

PURPOSE

The need for adequate descriptions of the residential populations at Veterans Administration (VA) facilities has long been felt by the management and professional staff at these facilities. These five reports present the findings of a series of studies on the characteristics of residents of the Veterans Administration Center in Biloxi, Mississippi. The studies' main goal was to compare the backgrounds and characteristics of residents with a history of alcoholism with the same factors in those who had no history of alcoholism.

METHODOLOGY

The saturation study was initiated in 1959. A structured questionnaire instrument was developed by the psychology staff of the VA facility. Data on 46 variables for 1,000 cases were collected. The population was divided into 223 cases with a medical history of alcoholism and 777 cases with no history of alcoholism.

The first study regarding disciplinary problems investigated two assumptions: (1) that the disciplinary problems arising from the use of alcohol were caused by a minority of the domiciliary member populations, and (2) that there were significant differences between backgrounds of

members with a history of alcoholism and backgrounds of members with no history of alcoholism. Background data included marital status and income level. Investigation of the first assumption involved a frequency tabulation according to the number of appearances in the VA's Manager's Court (for disciplinary infractions) of 56 cases having a history of alcoholism. Investigation of the second assumption involved percentage comparisons of the marital data and highest yearly income earned of the 1,000 cases.

The remaining four studies used the same 1,000 cases as in the first investigation but introduced new variables, including level of education, military service, employment records, and occupation. Other variables investigated were age at and type of admission, length of stay, sources of income, incidence of drug addiction and disease, and incidence of mental disorders, including chronic brain syndrome.

RESULTS

Examination of disciplinary actions associated with alcoholism showed that 35.7 percent of the 56 randomly selected cases had no appearances in Manager's Court during a 1-year period, while 25 percent of the cases accounted for 72 percent of all such appearances. A total of 5 percent of the 1,000 cases accounted for 55.6 percent of the disciplinary problems.

The patients with histories of alcoholism differed significantly from those with no such history on marital status and reported income. The higher percentage divorced among those with a history of alcoholism accounted for most of the difference on marital status. The reported incomes were higher for alcoholics, but this may reflect personality factors operating to bolster feelings of self-worth.

Nonalcoholics were productive for longer periods of their life spans than were the alcoholics, in terms of years of employment. With regard to military service, alcoholics tended to have received higher noncommissioned ratings and more ranks of warrant officer and junior commissioned officer than would be expected. Similarly, fewer alcoholics remained privates than would be expected by chance. Alcoholics tended to complete senior high school and enter college in greater numbers than would be expected by chance, but fewer of them finished college than would be expected.

Alcoholics generally entered residential institutions before reaching age 61, indicating that they seemed to fail in their efforts toward successful community living during their supposedly productive years. Alcoholics also differed from nonalcoholics in their income sources, especially in their larger percentage in the "no income" category. More alcoholics also had previous admissions to VA neuropsychiatric facilities than would be expected from their numbers. Moreover, alcoholics were less likely than nonalcoholics to own a car.

Although only 2.24 percent of the alcoholics would be expected to have a history of drug addiction, the actual proportion was 8.52 percent, indicating a possible relationship between alcoholism and drug addiction in a domiciliary population. Fewer alcoholics with cardiac disease were observed than expected, and more nonalcoholics with cardiac disease were observed than expected. This situation may occur because patients with severe alcoholism and serious cardiac conditions probably die before they can become residents in a domiciliary. In addition, an unexpected finding was that alcoholics and nonalcoholics did not differ significantly with respect to gastrointestinal disease. However, the alcoholics in the residential facility had a higher incidence of personality disorders than did the nonalcoholics, and a higher proportion of alcoholics than expected had one or more mental disorders. One-quarter of the alcoholics had chronic brain syndrome, compared to 11 percent of those with no history of alcoholism.

CONCLUSIONS

As predicted, elderly alcoholics in a VA residential setting differed significantly from nonalcoholics on a large variety of characteristics including marital status, income, employment, military history, education, medical problems, etc. Some of the differences were not in the directions that would be expected.

**CONSEQUENCES OF DRUG USE,
MISUSE AND ABUSE**



CONSEQUENCES OF DRUG USE, MISUSE, AND ABUSE

Frank J. Whittington, Ph.D.

In medicine, an ancient guide to practice advises, "Primum non nocere," or "First, do no harm." When physicians decide to employ drugs as part of their therapy, this is a hard rule to live by. Harming in the attempt to heal, iatrogenesis (what Illich [1976] refers to as "medical nemesis") has become a too-common medical phenomenon. A major class of such events has been termed "adverse drug reactions," which, according to Poe and Holloway (1980) "are among the most frequent causes of symptoms in old people." Such reactions include two types of events--side effects and interactions.

Side effects of drug use in older people are relatively common and quite troublesome. Smith et al. (1966) found that the incidence of drug side effects among medical patients aged 80 and over was nearly 25 percent compared to a rate less than half as great for those under 50. Melmon (1971) states that the risk of drug reaction in older persons (60 to 70) is nearly twice that of persons between 30 and 40. Levenson (1979b) and his contributors have documented the neuro-psychiatric side effects of drug therapy in older people, and Ziance (1979) has accomplished this task for a broader class of effects. Judge and Caird (1978) list some common side effects found in elderly people as nausea, vomiting, skin rashes, confusion, postural hypotension, and hypothermia. To these, Poe and Holloway (1980) add baldness, ringing in the ears, blurred vision, deafness, dryness of the nose and mouth, heart palpitation, asthma, gas, constipation, and diarrhea. As Ziance (1979) reports, one drug, reserpine (an antihypertensive), has been shown to produce such side effects as ". . . sedation, depression, decreased libido, increased appetite, gastric distress, Parkinson-like rigidity, premature ventricular contraction, and nasal congestion." Burch (1974) presents a focused discussion of three serious neurologic disorders associated with drug side effects--seizures, dementia, and dyskinesias--that are particular problems in older patients. Finally, Castleden et al. (1979) have admirably documented the special difficulties that the elderly experience with hypnotic drugs (defined as barbiturates and minor tranquilizers) and conclude that, as often prescribed for insomnia, they "are often unnecessary and may cause considerable iatrogenic disease. . . ."

Drug interactions take place when one drug either increases, decreases, or otherwise alters the action or effects of another drug taken concurrently. Although data on interactions are difficult to find, since most studies document only "drug reactions" that include both side effects and interactions, it is generally conceded that, because of the larger number of illnesses and symptoms suffered by older persons and the resulting larger number of medications they receive, their risk of sustaining a drug-drug interaction is also higher (Bressler and Palmer 1974; Lamy 1978, 1979a; Cadwallader 1979). One study that offers convincing evidence of this was done by James (1976a), who found that patients receiving one to five prescribed drugs in a hospital setting displayed an incidence of drug reaction of 18.8 percent, while the incidence for those patients taking six or more such drugs was 81.4 percent. This huge increase is almost certainly due to the very many more possible drug combinations created by adding just one medication to an already-crowded regimen.

Moreover, since, as Poe and Holloway (1980) point out, "drug reactions may be blatant, obscure, confusing, insidious, and subtle," and because the number of possible interactive effects rises exponentially with each new drug added, the prudent physician should, in the words of Bressler and Palmer (1974), "maintain a high index of suspicion" in order to anticipate and detect such interactions, especially when adding or subtracting a drug. Also not to be forgotten are the possible interactions with over-the-counter drugs and social drugs such as alcohol, tobacco, and caffeine (Krupka and Vener 1979a), as well as with foods (Yanchick 1976).

A final physical consequence worthy of mention is that of addiction. The problems of the aging narcotic addict have been well-documented and there is certainly real potential for older persons to become physically addicted to legal substances as well. Although no data are known to exist on barbiturate or diazepam addiction, for example, among older persons, from anecdotal information (Heller and Wynne 1975; Pfeiffer 1978) it seems a reasonable assumption that this does occur and possibly among a much larger group than anyone suspects.

It is somewhat difficult to distinguish precisely between physical and psychological consequences, since many of the apparent psychological reactions to drugs have a physical basis. But several types of psychological problems can be identified. According to Hollister (1979), "Elderly patients treated with psychotherapeutic drugs are more likely than younger patients to have adverse psychiatric effects from these drugs." Specifically, he suggests that older persons are particularly likely to develop psychic symptoms when taking (1) antipsychotic drugs (major tranquilizers, such as chlorpromazine [Thorazine] and thioridazine [Mellaril]; (2) antidepressants (such as the tricyclics and MAO inhibitors); (3) antianxiety drugs (minor tranquilizers, such as diazepam [Valium] or chlordiazepoxide [Librium]; and (4) the antimanic drug, lithium. Antipsychotics, reports Hollister, can cause oversedation, restlessness (akathisia), and withdrawal and depression (akinesia). He also cites data showing that confusional states can occur in 35 percent of all patients over 40 who are receiving tricyclic antidepressants and points out that such medications can also exacerbate existing schizophrenia or manic symptoms. Antianxiety drugs rather commonly produce oversedation and occasionally disinhibition, or uncontrolled rages. Lithium, states Hollister, is likely to produce confusional states that can mimic organic brain syndrome if it reaches toxic concentrations.

Among the most common psychological consequences of drug therapy in older persons is depression (Salzman and Shader 1978). This may result because the prescribed drug creates depression, exacerbates an existing depression, or merely produces symptoms of depression, such as apathy and sedation. A number of drugs can produce such effects, according to Salzman and Shader, including digitalis, antihypertensive drugs, antiparkinson drugs, corticosteroids, anticancer drugs, neuroleptic drugs (antipsychotics), antidepressants, and antianxiety drugs. In addition, interactions between several of these agents, each being taken in appropriate doses, can also produce significant depressionlike symptoms.

Another psychiatric condition that is often caused by adverse drug reactions is delirium (acute organic brain syndrome). Butler and Lewis (1982) list several of the major offenders, including barbiturates, tranquilizers, bromides, thiocyanates, and hormones. Raskind (1976) reports that adverse drug reactions were the major cause of acute brain syndrome among the older patients referred to his Seattle clinic, with 26 percent displaying symptoms that were drug induced.

Finally, Butler and Lewis (1982) describe the relationship between drugs and a common complaint of the elderly, insomnia, as one of mutual causality. First, certain prescribed and over-the-counter drugs, decongestants, for example, are stimulants that can cause insomnia. And, because many older persons have been too readily prescribed powerful hypnotics for extended periods (see Castleden et al. [1979] for an excellent discussion of these drugs), many have what Butler and Lewis call "drug dependency insomnia." This occurs typically when a person is addicted or habituated to one of the barbiturates, like secobarbital, and cannot withdraw without severe emotional or physical symptoms and/or "drug withdrawal insomnia."

For some of the consequences that will be discussed in this section, drugs are only implicated and cannot be causally linked with certainty. However, it seems logical to assume, based on the foregoing presentation of physical and psychological consequences, that working either through those results or directly, drug use and misuse do produce a real impact on the economic and family lives of the older person and are likely to contribute to premature institutionalization, criminal behavior, or even suicide.

Perhaps the first consequence of drug use for the elderly is impoverishment. While drugs may indeed be an economic bargain considering their therapeutic benefits, they are a definite drain on the older person's budget. Brotman (1976) reports that slightly less than 10 cents of the total health care dollar spent on older people goes for drugs; however, much of the total cost is paid by Medicare and/or Medicaid. But out-of-hospital drugs are not covered by Medicare, so prescription drugs, according to Butler and Lewis (1982), are "the largest single personal expenditure that the elderly must now meet almost entirely from their own resources." The impact of such a reality can be seen in the research findings of Brand et al. (1977), who report that the high cost of drugs is the greatest deterrent to older persons taking the medicines their doctors prescribe and, so, is the greatest cause of misuse. Though this finding is not supported by other researchers, it is likely that cost remains a significant factor for many.

Another consequence of drug use and misuse among the elderly is the physical burden and psychic disruption they often place on family members. While very little is written on this topic specifically, it seems safe to assume that because of the high proportions of older women, of single older persons, and of persons who live alone, drug use and misuse are both encouraged

by, and impinge negatively on, the social situation. The facts that the older patient is typically female and that females generally are prescribed, and take, more drugs than males (Whittington et al. 1981) work to encourage elderly drug use. Single persons living alone are likely to be at greater risk of misuse than those who live with at least one other person. If family members, whether spouse, children, siblings, or others, are aware of the potential for misuse in an older person who is ill, they will quite probably take on some extra responsibility for monitoring the person's drug-taking habits. Thorson and Thorson (1979a) suggest that when such need is obvious, the relative should accompany the patient to the doctor's office to get specific instructions concerning medications. Occasionally, however, the family will have given up and may be neglecting the older patient and the drug misuse problems. The Thorson and Thorson (1979a) use of Glaser and Strauss's (1968) notion of the "socially dead" person to describe how the older patient is sometimes treated by family members (and other caretakers) as an object with no personal rights is particularly pertinent.

Such behavior, coupled with the possibility of very real physical and psychiatric effects of adverse drug reactions or other forms of drug misuse, can easily lead to institutionalization. This is particularly true if the misuse has presented itself as delirium, which is often mistaken by family members and physicians alike for true dementia and incorrectly assumed to be incurable, the first sign of "senility." Whanger (1974) estimated that 15 percent of the elderly admitted to a State mental hospital in North Carolina were actually suffering from drug toxicities; this did not include alcohol-related problems, which he estimated to account for around 40 percent of admissions. As mentioned earlier, Raskind (1976) estimated that over one-fourth of his patients were suffering from drug-related delirium; they might easily have been admitted to a nursing home or mental institution had they not been referred to his program.

In the minds of most people, drug use and crime seem naturally related. Although this has not been traditionally true for most older persons, there are, nevertheless, some data that show that the criminal use of drugs (particularly, though not only, alcohol) is not exclusively a youthful phenomenon. Zax et al. (1964) present arrest data for public drunkenness in Rochester, New York, in 1961 showing that older white males had an arrest rate that was approximately two-thirds the peak rate of the sample (for 50- to 59-year-olds) and higher than that for all white males under 40. In addition, Epstein et al. (1970) examined frequency and cause of arrest of older persons (60+) in San Francisco during a 4-month period in 1967-1968 and reported that 82 percent of the 722 older persons arrested were charged with public drunkenness, compared with only 46 percent of all adult arrests during the period.

A more recent study by Shichor and Kobrin (1978) of trends in the criminal behavior of older persons (55+) over an 11-year period (1964-1974) using the Uniform Crime Reports suggests that the highest proportion of misdemeanor arrests were for drunkenness at each of the three time periods observed. However, that proportion declined over the study period from 61.7 percent in 1964 to 46.3 percent in 1974 but was supplanted almost exactly by increases in arrests of this older age group for driving under the influence of alcohol (5.8 percent versus 19.4 percent). The authors conclude that this means a lessened emphasis by police on the so-called "revolving door" criminal approach to dealing with drunkenness and a greater reliance on noncriminal treatment programs. Also, they speculate that more arrests of older people for drunk driving probably reflects increases in life expectancy and increased general use of automobiles. It could also stem from a healthier, wealthier older population that is slowly becoming more like other age groups in its virtues as well as its vices.

Finally, Pottieger and Inciardi (1981) have documented the significant representation of older men among four major types of "street" populations associated with criminal activity: street addicts, nonaddicted street criminals, professional thieves, and men on skid row. They have also, however, shown how the differences that exist between these older men and their younger counterparts on the street in terms of criminal and drug use experiences and preferences are leading to increasing dissatisfaction with such lifestyles and tendencies to drop out of street life and, consequently, drug use. Pottieger and Inciardi conclude that whatever drug use may occur among future street populations will differ from today's patterns as these subcultures become more unified and crime as the primary way of life becomes more dominant.

The final phenomenon that has been classified as a social consequence of drug use is drug-related suicide. While suicide is actually a physical act with psychological antecedents, it is treated here because social relations are also implicated in its etiology (Whitehead 1972), and it has such profound social consequences of its own; in a real sense, because of its profoundly antisocial nature in many cases and its altruistic basis in many others, it may be the ultimate social act.

The relation between drugs and suicide in the elderly is actually a two-pronged one. First, as Saxon et al. (1978) state: "Drug abuse has often been described as a self-destructive behavior and equally often as a form of slow suicide." The older person's misuse of drugs may itself, then, be what Shneidman (1968) has termed "subintentional" suicide. On the other hand, drugs, particularly certain kinds, because of their potency and ready availability to many old people, can actually prove to be the final proximate instrument of self-destruction for persons whose intentions surface late in life. Benson and Brodie (1975) review several findings of other studies and conclude that barbiturates and other sedative drugs are the primary drugs of choice among older people, as they are for the country as a whole (Inciardi et al. 1978a), and Hollister (1979) gives pharmacological support for adding lithium; tricyclic antidepressants; and the anti-psychotics, particularly thioridazine (Mellaril), to this deadly list. In fact, he states that the only relatively safe (from a suicide-risk standpoint) psychotherapeutic drug class is that of the benzodiazepine antianxiety agents, e.g., diazepam (Valium) and chlordiazepoxide hydrochloride (Librium). Some disturbing data reported by Inciardi et al. (1978a) show that over the 20 years prior to 1975, the proportion of sedative-induced suicides in Dade County (Miami), Florida, who were 65 or over steadily increased, from 12 percent during the 5-year span from 1956 to 1960 to 26.7 percent from 1971 to 1975. This might indicate the elderly's greater continuing access to these drugs as physicians have gradually reduced their prescription of them for safety reasons. Such access might be continuing because the old have hoarded these drugs over the years or because the doctors serving them have not, for some reason, changed over to minor tranquilizers as drugs of choice to aid sleep, as many other physicians have done. Further, the elderly's proportion of suicides from all drugs also increased substantially over the period studied, from 12 percent to 20.7 percent, though this increase was not so great as that for the barbiturates.

Benson and Brodie (1975), Burston (1969), and Hollister (1979) all conclude that depression is the most common reason why the old commit or attempt suicide, with chronic physical illness a relatively weak second, and it seems probable that most of those for whom illness was the ultimate cause were also depressed. There is also general agreement among these authors, as well as Bean (1973), that the old who attempt suicide are more serious in their desire to die and so are more often successful.

It seems appropriate, then, to summarize these concerns by noting the unfortunate juxtaposition of three facts: (1) the elderly in this society suffer from a number of social losses sufficient to lead to depression; (2) the elderly have ready access to prescription psychotherapeutic drugs intended to treat that depression and other psychiatric problems; (3) the elderly commit suicide, usually because of depression, in relatively high numbers.

The possible consequences of elderly drug abuse include all of the possible consequences of drug misuse. However, there are a few additional potential consequences. Elderly abusers of illegal drugs will face all of the difficulties of their younger counterparts. As it is likely that elderly drug abuse of both legal and illegal drugs involves the use of substances that have psychoactive effects, it is quite likely that elderly drug abuse will result in drug dependence with all of the typical problematic concomitants of dependence. Further, if elderly drug abuse is most often a coping strategy, albeit a maladaptive one, as has been hypothesized (e.g., Glantz 1981), then it is likely that the elderly abuser is attempting to cope with a problem or set of problems that would presumably be better dealt with through alternative social or psychotherapeutic means; as long as the abuse continues, it is likely that the abuser will not avail himself or herself of these alternatives.

Recognizing at the outset that drugs produce positive as well as negative consequences, we determined, nevertheless, to fix on the negative ones in the hope of describing them in some orderly fashion and suggesting some clues as to their ultimate prevention. It seems clear from this review that the physical, psychic, and social consequences of drug use and misuse are inextricably linked and that no discussion of one proceeds for very long without mention of one or both of the others. It also seems clear that, as Levenson (1979b), said of iatrogenic side effects of drugs, most, if not all, of these problems are "preventable or potentially reversible if recognized and diagnosed early. . . ." A final obvious conclusion is that research should begin to focus on explaining precisely how these consequences take place rather than merely describing their existence. Description to this point has been necessary and helpful, but attention must now turn to ways of explaining and understanding. It certainly is the more difficult road to travel, but it is the only one that will ever lead anywhere we want to go.

Williamson, J., and Chopin, J.M. Adverse reactions to prescribed drugs in the elderly: A multi-centre investigation. Age and Ageing, 9(2):73-80, 1980.

DRUG	Prescription drugs
SAMPLE SIZE	1,998
SAMPLE TYPE	Hospital patients
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	England; Wales; Scotland
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	November 1975-1976
NO. OF REFERENCES	13

PURPOSE

The increasing prescription and consumption of drugs is causing widespread anxiety because of cost, inappropriate prescribing, and adverse reactions. The elderly show even higher adverse drug reaction rates than the general population. For that reason, the present study, which was arranged by the research committee of the British Geriatrics Society, investigates prescribing patterns, the prevalence of adverse reactions, and offending drugs among the elderly.

METHODOLOGY

The study sample consisted of 1,998 patients (677 men and 1,321 women) admitted (consecutively in series of about 50) to 42 geriatric units in England, Wales, and Scotland after November 1975. Data on possible drug reactions were collected on questionnaires, transferred to magnetic disk, and analyzed by computer. Data on nonprescription drugs were difficult to obtain and unreliable.

RESULTS

Of the total sample, 81.3 percent were taking drugs, with 80.3 percent receiving from one to three prescription drugs. There was little difference between men and women in numbers of drugs taken. Diuretics were the most widely prescribed drugs (37.4 percent), followed by analgesics, psychotropics, and digitalis.

Adverse reactions were recorded in 248 patients: in 179 patients they were attributed to 1 drug; in 59, to 2 drugs; and in 5, to 3 drugs. Diuretics were responsible for the largest number of adverse reactions, with psychotropics a close second. However, the risk of reaction was greatest for hypotensives, followed by antiparkinson drugs, psychotropics, and digitalis. A significant sex difference for adverse reactions occurred only in the case of digitalis (16.1 percent for males and 9.4 percent for females). Adverse reactions were not significantly different for patients over and under 75 years old.

Adverse reactions increased in prevalence with the increasing numbers of drugs being prescribed. Adverse reactions rose from 10.8 percent in patients receiving one drug to 27 percent in those receiving six.

In 9.6 percent of the males and 10.9 percent of the females in the sample, an adverse drug reaction was judged to be the reason for admission of the patient to the hospital. Full recovery occurred in only 68.7 percent of all reactions. The lowest recovery rate was 46.2 percent for antiparkinson drugs, and the highest, 80.4 percent for digitalis reactions. Two patients died, one of digitalis intoxication and the other of a perforated ulcer after taking ibuprofen, paracetamol, and aspirin.

CONCLUSIONS

Despite this study's highly selected sample of old people, findings suggest an overall adverse drug reaction rate of 12.4 percent and a 15.3 percent rate for those taking prescribed drugs. Findings also confirm a high rate of multiple drug use. In contrast to other studies, no increase in reaction prevalence was observed in patients over 75 years old. There was a significant positive correlation between the number of prescribed drugs and the prevalence of adverse reactions. As the most commonly prescribed drug, diuretics are responsible for the greatest number of adverse reactions, but hypotensives and antiparkinson drugs carry a greater risk of reactions. Substantial proportions of patients who experience adverse reactions do not recover fully from them. The findings emphasize the need for greater care in prescribing drugs and in supervising the drug use of older persons.

Castleden, C.M.; Houston, A.; and George, C.F. Are hypnotics helpful or harmful to elderly patients? Journal of Drug Issues, 9(1):55-61, 1979.

DRUG	Hypnotics
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	British
GEOGRAPHICAL AREA	Great Britain
METHODOLOGY	Literature review; theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	39

PURPOSE

Although elderly people need less sleep than younger people, they spend more time in bed, take more time in falling asleep, and once asleep suffer frequent interruptions. Thus, insomnia is a common complaint even among elderly persons who are in good health. When elderly persons are ill, their insomnia may be aggravated by anxiety, depression, or a physical complaint. Doctors are often asked for a prescription for a sleep-inducing drug and frequently prescribe hypnotics because they are unaware of the drugs' risks and of the physiological sleep requirements of the elderly.

This paper reviews the literature on the extent of the use of hypnotics by elderly persons in Great Britain and special problems posed by this use. Recommendations for the use of hypnotics in elderly patients are also presented.

SUMMARY

One-fifth of the hospitalized adults in various British surveys take hypnotics. Half of those in the hospital for more than 17 days also take hypnotics. Numerous reports exist regarding the extent of drug hoarding. For example, one study found that in Southampton 47 percent of the

homes belonging to elderly individuals and 73 percent of those belonging to younger persons contained hypnotics. Overprescriptions and inadequate instructions to patients are the major reasons for drug hoarding. However, drug taking and hoarding appear to be less common in the elderly than in the young, although reports conflict on this issue.

Many studies have shown that the elderly experience more adverse reactions to hypnotics than do the young. Different hypnotics have produced such effects as paradoxical excitement, confusion, incontinence, drowsiness, and sedation. A study correlating drug therapy with the time of fracture of the femur in 390 Nottingham patients over age 65 showed that nearly all fractures following nighttime falls had occurred in patients taking barbiturate hypnotics. In contrast, nonbarbiturate hypnotics had a minor effect on the incidence of fracture. Although similar surveys in other areas failed to show similar results, the Nottingham report suggests another potential danger from hypnotics.

Three separate mechanisms are involved in the elderly's increased susceptibility to the unwanted effects of hypnotics. The amount of the drug remaining in the body of an elderly patient and circulating in the blood may be increased due to reduced efficiency in elimination of the drug. Evidence also indicates that the brain becomes more responsive to hypnotics as age increases. Moreover, the elderly are less able to compensate for side effects than are the young, as a result of reduced organ reserves and less efficient compensatory mechanisms.

CONCLUSIONS

Hypnotics are an inappropriate treatment for insomnia due to depression, loneliness, pain, cough, or other physical disability and should not be used to try to relieve boredom. Doctors should be cautious in prescribing hypnotics to the elderly because of the known increases in and intensity of potential side effects in this age group. Careful choice of drug, prescription of a lower dose than commonly suggested, and a short course of treatment are recommended. Doctors should also consider the elderly patient's ability to combat any unwanted effects of the drugs. Failure to follow these guidelines will result in the continuation of the high rate of adverse drug reactions in this age group.

Eckardt, M.J. Consequences of alcohol and other drug use in the aged. In: Behnke, J.A.; Finch, C.E.; and Moment, G.B.; eds. The Biology of Aging. New York: Plenum Press, 1978. Pp. 191-204.

DRUG	Prescription drugs; alcohol; opiates; psychoactive drugs; antipsychotics
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Substance users
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	17

PURPOSE

As Americans grow older, they tend to use larger and larger quantities of many different chemical compounds. This reliance on drugs is the result of frequent medical intervention associated with an increased incidence of physical illness and of the psychological dilemmas and stresses that accompany forced retirement, loss of loved ones, economic uncertainty, isolation, and decreased feelings of self-worth. Both physicians and patients have come to rely on psychoactive medications and over-the-counter drugs to relieve the physical and psychological debilitation that often accompanies old age. All of the drugs have therapeutic effects, but they also have adverse effects, which are too often neglected. The present study examines the health consequences for the elderly of prescription and nonprescription drug use, as well as alcohol consumption.

SUMMARY

Consequences of prescription drug use. The consequence of the use of a physician-prescribed drug is expected to be a therapeutic one; this contributes to a steady increase in the number of available drugs and an expansion of knowledge about the positive and negative effects of those drugs. At the same time, intensified drug use in the aged also increases the potential for side effects, in part because of the changes of aging in the human physiological system. In the

elderly the reserve capacity of organ systems and the adaptive responsiveness of body-chemistry alteration are both reduced. These changes may produce drug accumulations and exaggerations of known pharmacological actions of drugs. For these reasons, responsible physicians will routinely prescribe lower drug doses for older people than the standard recommended dose established for younger patients. Another major factor correlated with an increased incidence of adverse drug effects in the aged is the widespread use of multiple-drug therapy. Physician errors such as overprescribing, incorrect medications, and errors in administering medications also contribute to the incidence of adverse side effects.

Consequences of alcohol use. Large-scale surveys between 1964 and 1971 indicated that the overall trend in drinking behavior is one of declining popularity of alcohol with age and a drop in heavy drinking. However, alcohol remains the most commonly used nonprescription drug, with the possible exception of aspirin. The same trend exists for both males and females, although the percentage of female drinkers in the age 64-plus category is only around 2 percent.

Over 1 million elderly persons in the United States suffer from drinking problems, and the number is expected to rise. Although occasional social imbibing of one or two drinks has been shown to have beneficial effects for the elderly, both in nursing homes and in the community, even moderate amounts of alcohol may complicate many disease processes or alter the therapeutic effects of medication.

The drinking patterns of elderly alcohol abusers differ from those in other age groups. The aged problem drinker is likely to drink alone, to drink at home, and to be a binge drinker, all attempts to cope with growing old in America. Older drinkers can be classified as early- or late-onset drinkers. While the late-onset drinkers usually have few deep-seated psychological problems and are responsive to treatment, the longstanding drinker usually cannot be treated successfully because of reduced socioeconomic capability, poor physical and mental health, and resistance to developing new lifestyles.

Older alcoholics are difficult to detect because of the reluctance of friends and relatives to identify their problems. Few social agencies and treatment centers are equipped to deal with elderly alcohol problems.

Alcohol has been implicated as a deleterious influence on the normal physiological changes that accompany aging. Furthermore, older brains appear to be more susceptible to alcohol than younger ones because of the reduced neural cell efficiency and the fewer nerve cells in the older brain. Alcohol's effect on both memory impairment and on cognitive functioning may be represented as a continuum from cocktail party deficits to almost total memory loss for recent events. Moreover, the more alcohol consumed per occasion by social drinkers, the poorer their performance on cognitive tests.

Misuse of other drugs. Several reports have documented that many individuals between age 45 and 75 who used opiates at younger ages still use them, although they change their lifestyles to be less easily recognized. Furthermore, the elderly frequently misuse legal psychoactive drugs such as tranquilizers, sedatives, and other depressants. These drugs are prescribed as a solution to the pressing problems of the elderly (e.g., depression, anxiety, and insomnia), but the drugs may be addictive and even produce overdoses.

While diazepam (Valium) and chlordiazepoxide (Librium) may prove effective in reducing anxiety and hostility among elderly patients, they may also induce amnesia and disorganization in cognitive and intellectual capacities. Antipsychotic drugs, especially chlorpromazine (Thorazine), are useful in diminishing hyperactivity, decreasing delusions, and depressing psychotic symptoms, but the elderly, especially women, run a great risk of developing dyskinesia with long-term therapy.

Errors in medication of the elderly are common. In as many as 60 percent of elderly patients taking medication, dosages or timing are inaccurate. Frequently, physicians do not explain in sufficient detail how a medication is to be administered and what constitute the signs of an adverse drug reaction.

CONCLUSIONS

Given the increased reliance by the elderly on prescription medications, new investigational drugs should be tested clinically for adverse side effects. Greater emphasis should be placed on training primary care physicians in geriatrics and pharmacology. Pharmacological companies should improve drug packaging so that it is easier to understand, and more extensive epidemiological information on drug use in the elderly must be collected and analyzed. Also, social help agencies must be staffed with persons capable of recognizing drug abuse and alcoholism. The elderly must learn that alcohol is a drug that can interact with medication and produce life-threatening situations. Further, greater emphasis must be placed on development of methods other than medication for treating the mental effects of growing old. Finally, the National Institute on Aging should be encouraged to expand its efforts in determining the consequences of alcohol and other drug use in the aged.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Depressed patients
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	52

PURPOSE

Drugs are often responsible for the development of depression; the aggravation of preexisting depression; or the production of depression-like symptoms such as sedation, apathy, and lethargy. The elderly are particularly likely to be taking various drugs or to be undergoing treatment for a medical or emotional disturbance and thus are predisposed to depressive side effects.

To facilitate accurate evaluation of depression in elderly patients, this study reviews the roles of specific drugs and of drug interactions in the genesis of depression, as well as depression symptoms in elderly patients. Diagnostic guidelines and suggestions are offered.

SUMMARY

A number of drugs prescribed for treatment of a medical disease may cause depression, particularly in the elderly. Digitalis may lead to depressed mood, apathy, weakness, and weight loss in the elderly. Antihypertensive agents are even more likely to induce such symptoms; depression occurs in 50 to 70 percent of the patients so treated. Reserpine is the antihypertensive agent most responsible for producing depression. The characteristics of reserpine depression that distinguish it from true endogenous depression are the presence of anxiety, lack of guilt,

and lack of self-deprecation. Methyldopa also has depressive side effects, particularly in the elderly; these include drowsiness, sleepiness, fatigue, and weakness. Other antihypertensives likely to cause depression are propranolol, guanethidine, hydralazine, and clonidine.

The elderly, particularly those over age 70, are predisposed to the psychiatric reactions that may accompany the treatment of parkinsonism with L-dopa. Although delirium and psychosis are more common side effects than depression, a number of reports have described severe depression with suicidal preoccupation in elderly patients. Most of those who become suicidal have a history of prior depressions. Bromocriptine and carbidopa may also cause depressions.

Corticosteroids and related compounds used to treat such medical disorders as arthritis and anticancer drugs such as vincristine, vinblastine, 5-fluorouracil or L-asparaginase may also produce depressive symptoms.

Neuroleptic drugs are used to treat psychosis in younger and older patients and agitation in older patients. However, aliphatic derivatives, piperidine derivations, chlorprothixene, and loxapine may have prominent sedative side effects. Moreover, the syndrome of drug-induced akinesia is a side effect of neuroleptic therapy to which the elderly are especially prone. In addition, tricyclics and monoamine oxidase inhibitors do not cause depression per se, but some of these drugs (e.g., amitriptyline and doxepin) induce considerable sedation, which may be interpreted as depression.

Barbiturates and the propanediols bring about considerable central nervous system depression, leading to excessive sedation, depressed mood, and suicidal thoughts. The benzodiazepines are less toxic but may produce drowsiness and sedation in the elderly, even at lower dose levels than prescribed for younger patients.

Polypharmacy, leading to drug interactions, is common in prescribing drugs for the elderly. Drug interactions are not notable causes of depression, except for the effects of oversedation, which may be confused by the clinician with depression. Any central nervous system sedative may interact with a variety of other drugs with a sedative action, increasing sedative symptoms. Severe drug-induced symptoms in the extrapyramidal nervous system, such as akinesia, may be augmented by other drugs, especially when two neuroleptics are used together. Early stages of toxic delirium sometimes appear as depression, with listlessness or agitation, self-deprecatory thoughts, insomnia, and anorexia.

Depression in the elderly may be difficult to diagnose. In severe cases, the disorder is readily recognizable: the patient looks sad, apathetic, and may express a sense of helplessness, despair, or worthlessness. Guilt over real or imagined past failure or errors may be a prominent part of the thought content, and the elderly patient may stay in bed and become incontinent. The clinical picture may also be dominated by delusions of worthlessness, guilt, and self-deprecation, pessimism, hopelessness, apathy, and delusions of somatic dysfunction. Paranoia, with delusions of persecution, grandiosity, and ideas of reference may be a part of severe late-life depression. Vegetative signs of depression such as insomnia, anorexia, fatigue, constipation, and diarrhea are regular components of late-life affective illness.

Severely depressed elderly patients may appear apathetic or histrionic. Repeated physical complaints, often involving the digestive tract, may provide a clue to depression. Suicidal thoughts are not uncommon and must be taken particularly seriously in the elderly. Lassitude, sleepiness, and apathy, which may be part of retarded depressions in younger adults, are more likely to be signs of physical disease or drug toxicity in the elderly. The clinician should take care in assessing the physical condition of depressed elderly patients to make sure that the depression is not masking real symptoms of a physical illness.

CONCLUSIONS

A number of drugs for medical conditions or psychotropic drugs may produce depression or depressionlike symptoms in elderly patients. Because of the interweaving of depression, physical illness, and drug effects, every psychiatric evaluation of a depressed elderly patient should include a careful physical examination with noninvasive laboratory tests, a detailed appraisal of the medical and over-the-counter drugs taken by the patient, and carefully conducted psychiatric interviews employing indirect and nonthreatening questions.

DRUG	Alcohol
SAMPLE SIZE	Not specified
SAMPLE TYPE	General population; elderly
AGE	All ages
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Nationwide
METHODOLOGY	Secondary analysis
DATA COLLECTION INSTRUMENT	FBI Uniform Crime Reports statistics
DATE(S) CONDUCTED	1964-1974
NO. OF REFERENCES	15

PURPOSE

This paper describes trends in criminal offense patterns among the elderly and discusses their implications for criminal justice policy. The role of alcohol in crimes by the elderly is highlighted. Although the definition of the "elderly" varies according to the subject area being discussed, the arrest statistics of the Uniform Crime Reports suggest that in the area of crime, the elderly should be defined as those aged 55 and over.

SUMMARY

Criminal involvement is known to decline with advancing age, but the data do show changing patterns over time. In 1974 the elderly constituted about 20 percent of the American population and accounted for only about 2 percent of the arrests for Index offenses (i.e., felony offenses from 1964 to 1974). However, a 43 percent increase in Index crimes for the 10 year period for all age groups is far outstripped by a 224 percent increase in arrests for Index offenses in the population aged 55 and over.

Within the set of Index crimes, the distribution of arrests of the elderly shows a distinctive pattern. There is a more prominent pattern of crimes of violence among the elderly than among

either the total arrested population or the youth group. Aggravated assault is the most prominent violent crime among the elderly, accounting for about 80 percent of the total arrests for violent crimes in this age group. For property offenses, nearly all arrests for the elderly are in the general category of larceny-theft.

Among the non-Index, generally misdemeanor offenses, five are prominent among arrests of the elderly: gambling, driving under the influence, drunkenness, disorderly conduct, and vagrancy. Offenses related to alcohol consumption are most prominent in the misdemeanor category. Arrests for drunk driving have particularly increased, while the data on arrests for ordinary drunkenness suggest a shift away from penal to civil forms of response.

Little data exist on the way in which the criminal justice system handles the elderly and how this differs from its handling of younger offenders. A study in Israel indicated that Israeli authorities tend to react differently to elderly lawbreakers than to younger offenders. Their differential treatment was clearly reflected in the lowering of this group's share in the official crime statistics. Police tended simply to close files and the courts to dismiss cases in this age group. Families tended to hide the deviance of their aged members. Other factors reducing criminal involvement included the physical and social changes in the elderly and the general maturation process occurring in persons over age 40.

The civic status of an age group may also relate to its handling by the criminal justice system. The movement to lower the age of criminal responsibility for juvenile offenders may stem in part from the growing civic status of youths, as exemplified by their political activism during the 1960s and the lowering of the voting age. The growing numbers and group consciousness of the elderly, as exemplified by the "Gray Panthers" movement, may change the civic status of the elderly.

CONCLUSIONS

Most elderly arrests were for misdemeanor offenses connected with the consumption of alcohol. The elderly may well have been viewed in the past as less than fully responsible for their criminal acts. However, their growing absolute and relative numbers in the population and a corresponding rise in their political power and civic status may produce an increase in the attribution of criminal responsibility to the elderly. As a result, criminal justice agencies will face the need to distinguish between impaired and competent elderly offenders in the administration of justice.

DRUG	Prescription psychotropic drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Suicidal persons
AGE	Mature adults; aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHIC/L AREA	United States; Great Britain
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	23

PURPOSE

Suicide among the elderly is recognized as a serious social problem in the West. In the United States, suicide is 1 of the 10 leading causes of death for persons aged 45 to 64. Older white males are at special risk of suicide.

This paper reviews the current literature on suicide by medicinal overdose among the elderly population of the United States and Great Britain. The widely differing opinions on the causes of such acts and methods of prevention are examined.

SUMMARY

Chronic illness as factor. Serious physical disease is clearly a factor influencing the suicide decision. Batchelor (1955) observed that about 60 percent of older people who attempt suicide have a significant degree of physical disease, most often cardiovascular disease. O'Neal and others (1956) state that serious suicide attempts occur more often among patients with manic-depressive psychosis and chronic brain syndrome than among those with other mental diseases. These two diseases occur more often in the elderly. Regardless of the role of disease in suicide, older persons have greater access to and familiarity with drugs, which are a convenient medium for suicide.

Depression as factor. At least 20 percent of the suicidal elderly population may have mental depression without serious physical ailments, while those who have physical disease are often mentally depressed. The change in lifestyle accompanying retirement is probably a crucial factor for older white males. These males tend to take refuge in the past and do not complain about their state in life. Suicidal gestures are rare in old people. Berger (1967) noted that some barbiturates produce or intensify preexisting depressive and suicidal tendencies and are potentiated when ingested in combination with alcohol.

The role of barbiturates and psychotherapeutic drugs. About 1,500 successful barbiturate suicides occur in the United States each year, although the prescribing of barbiturates is apparently declining. The increasing insomnia often associated with old age is associated with the increased availability of barbiturates as a suicide means. The availability of a drug is a key factor in its use in suicide attempts, as shown by the increasing use of tranquilizing drugs and antidepressants in suicide attempts. It is difficult to estimate lethal dosages of psychotropic drugs, as the toxic dose varies with the individual. This situation creates a dilemma for the prescribing physician, who must decide whether to withhold a potentially beneficial drug because of the danger of overdose.

Prescribing and dispensing drugs. Several authors note physicians' neglect of their responsibility regarding prescriptions of potentially lethal drugs. Overprescribing and overaccumulation of drugs in a patient's home are both problems. Pharmacists often have more frequent contact with the drug taker than do physicians and are in a position to assume a clinical attitude toward the patient. If the patient has regular contact with the same pharmacist, information may be elicited that should be communicated to the physician. Gibson and Lott (1972) also believe that pharmacists as well as physicians should inform the public regarding potential drug interactions. They noted that about three-fourths of all recorded suicides have been under a physician's care within 6 months of the act, and many also came into contact with pharmacists.

Prediction and prevention. Mayo (1974) found a significant correlation between continuing personal and social dysfunction and repeated drug overdoses. O'Neal's study of persons averaging 71 years in age found that suicide attempts in the older group were often more serious than in the younger groups. However, attempted suicides may not always predict suicide in that the cathartic effect of the attempt may produce psychologic changes. In addition, the taboo of suicide leads to underreporting; recorded suicides in the United States probably amount to only one-third of the actual number.

CONCLUSIONS

Drugs have both increased people's life spans and provided a means for taking life. While the suicide rate has stayed constant, drugs are increasingly used to commit suicide. Depression is a primary symptom in suicidal older people. Social factors are often the underlying cause of suicide in the elderly. Declining physical and financial powers and loss of status through retirement and death of loved ones require more adaptability than older persons are often capable of.

Responsible prescribing and dispensing practices can only partially aid in keeping drugs out of the hands of the elderly. It is nearly impossible to monitor and control the distribution of potentially lethal drugs to old people, and withholding certain useful drugs can increase the chances of suicide due to depression. Moreover, suicidal persons can hoard drugs prescribed in limited quantities, and pharmacists' relationships with the public would be affected if they were revealed as physicians' informants. One solution to the problem of suicide in the elderly would be to change societal attitudes toward the elderly so that they are accepted and valued rather than segregated and feared as portents of what all people will become.

Burch, J.G. A brief review of drug related neurologic disorders in the elderly. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore, Md.: Williams & Wilkins, 1974. Pp. 29-33.

DRUG	Prescription ataractic drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Literature review; clinical observations
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	8

PURPOSE

The increase in the number of drugs prescribed by physicians has been accompanied by an increase in drug-related problems. Recognition of these problems often lags behind the documentation of beneficial effects of drugs. Although major advances have occurred in the drug treatment of the elderly in the last two decades, some costs have been incurred. This paper reviews three problem areas in the use of prescription ataractic agents in the elderly: (1) syncope and seizures as drug-related phenomena, (2) the diagnosis and treatment of the patient with dementia or delirium, and (3) dyskinesias following phenothiazine therapy.

SUMMARY

The convulsant effects of the phenothiazine group of drugs have been recognized for some time, although the precise mechanisms involved are unclear. The potential of tricyclic antidepressants to increase the frequency of seizures has been recognized for over a decade. Factors that increase the potential for seizures following administration of tricyclic antidepressants include a low convulsive threshold, high doses administered parenterally and in combination with phenothiazines, and the presence of significant side effects such as headache and agitation.

The possibility of withdrawal seizures when long-term sedative or barbiturate therapy is ceased is also important to note. A further problem is that of drug-induced postural hypotension, which may result in syncope and stroke.

The prolonged use of sedative, hypnotic, and tranquilizing drugs such as bromides, paraldehyde, barbiturates, and phenothiazines can produce marked reduction in psychomotor activity, sufficient to suggest primary degenerative cerebral disease. The chronic use of major anticonvulsant drugs may also produce deficits in higher functioning. Since patients with dementia often have symptoms that make care by family or institution difficult, judicious use of psychotropics can be helpful in improving mood, improving sleep patterns, and other areas. However, patients with cerebral disease are especially sensitive to psychotropic medications and small doses should be used. Sedatives, especially barbiturates, are poorly tolerated.

Five recognized movement disorders are associated with the use of psychotropic drugs. Akathisia, which is characterized by continuous agitation or restless activity of the face and extremities, is more common in the middle-aged population. Buccolingual dyskinesia is characterized by chewing and mouthing movements, increased blinking and grimacing, and tongue movements. The older population is affected, but the symptoms tend to begin or be aggravated following cessation of phenothiazine therapy. Patients with dystonia tend to be relatively young and male and have various movements involving tongue-face-neck posturing. Pseudoparkinsonism is characterized by rigidity, resting tremor, loss of associated movements, increased salivation, a shuffling gait, and other traits. This syndrome affects a majority of patients given phenothiazines, usually within a few weeks of therapy. In a minority of patients, a more distinct choreiform or athetoid movement disorder has been reported.

These dyskinesias have generally been resistant to a variety of therapeutic agents. Some of the syndromes may actually be potentiated by the classic antiparkinsonian drugs commonly used in prophylaxis when phenothiazines are being administered. These drugs should be withheld at least until parkinsonian features become evident.

CONCLUSIONS

No effective treatment for tardive dyskinesia has been found. The syndromes of dyskinesia resulting from the use of the drugs discussed continue to pose a real problem. Further search for effective treatments of drug-related problems is essential.

Bean, P. Accidental and intentional self poisoning in the over-60 age group. Gerontologia clinica, 15:259-267, 1973.

DRUG	Multidrug
SAMPLE SIZE	107
SAMPLE TYPE	Accidental versus intentional self-poisoning hospital admissions
AGE	Aged (range: 60-86; mean: 68.9)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Chichester, Sussex, England
METHODOLOGY	Comparative study
DATA COLLECTION INSTRUMENT	Hospital records; Coroner's Court records
DATE(S) CONDUCTED	1967-1971
NO. OF REFERENCES	2

PURPOSE

Current research in self-poisoning has tended to concentrate on younger individuals, despite high suicide rates among the elderly, especially from drug overdoses. Furthermore, a small but important group of accidental poisonings by the elderly has been largely ignored. To assist in the management of intentional and unintentional self-poisonings, the present study examines similarities and differences between unintentional poisonings and suicides in the over-60 age group.

METHODOLOGY

The study sample consisted of 107 patients admitted for self-poisoning to 3 general hospitals in the Chichester area (Sussex, England) from 1967 to 1971. Study data, including the accident/suicide classification, derived from the hospitals' computerized record system. The records of the Coroner's Court for the district were used for followup.

RESULTS

Of the 107 persons admitted, 31 were men and 76 were women. The mean age was 68.9 years, with an upper range of 86 years. Women outnumbered men for both accidents and attempted suicides. Attempted suicides were more common than accidents in all but those aged 65 to 69. Contrary to what was expected, the number of attempted suicides and especially of accident victims tended to decrease with age, despite an increase in the size of the over-70 age group.

The total sample had taken 131 drugs; 14 subjects (mostly females attempting suicide) had taken more than one kind of drug. The number of drugs taken did not differ significantly between accidents and attempted suicides. Sedatives and hypnotics were the largest groups of drugs used. In general, however, accident victims had taken a wider range of drugs, while attempted suicides were generally linked to sedatives, hypnotics, and other psychotherapeutic drugs. Attempted suicides tended to stay slightly longer in the hospital than the accident victims (6 days compared with 5), but otherwise both groups tended to be admitted to the hospital during similar periods throughout the year and on similar days of the week.

Accidental self-poisoning did not seem to be an important cause of death among the elderly. In this sample, none of the accident victims died as a result of their accidents, compared to five attempted suicide victims who subsequently died, four during index admission. Comparison with other age groups shows that the elderly took fewer analgesics and slightly more barbiturates/hypnotics. However, there were many more accidents among the elderly (41 percent) than in the group aged 10 to 59 (20 percent).

CONCLUSIONS

The important differences between accidental and intentional self-poisonings occur in the patterns of drug taking and in the death rates during index admission. Drug accident rates are high among the elderly but do not increase after age 69. Contrary to expectation, death rates from both intentional and accidental poisonings are low. Thus, the high level of loneliness and social isolation considered typical in retirement communities such as Chichester may not be as pronounced as believed. Finally, without formalized classification procedures, the difference between accident victims and attempted suicides will remain unclear, raising the question of whether the groups should be seen as separate medical, psychiatric, and social problems.

Epstein, L.J.; Mills, C.; and Simon, A. Antisocial behavior of the elderly. Comprehensive Psychiatry, 11(1):36-42, 1970.

DRUG	Alcohol
SAMPLE SIZE	45,677 (aged subsample: 722)
SAMPLE TYPE	Criminal offenders; elderly offenders arrested for drunkenness and sexual offenses
AGE	Young adults; mature adults; aged
SEX	Both
ETHNICITY	Cross-cultural
GEOGRAPHICAL AREA	San Francisco, California
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	City Jail Arrest Ledger; interviews
DATE(S) CONDUCTED	4 months during 1967 and 1968
NO. OF REFERENCES	6

PURPOSE

Elderly offenders have rarely been the subject of study and relatively little has been written about them aside from the information presented in annual arrest and prison reports. The present study seeks to describe characteristics of offenders over 60 years old arrested in San Francisco for drunkenness or sexual offenses.

METHODOLOGY

Data were obtained on 722 individuals over 60 years old arrested during a period of 4 months during 1967 and 1968, as well as on all offenders over 18 years old in 1967 (45,677). The source of information was the San Francisco City Jail Arrest Ledger. In addition, statistics on a random sample of 200 people over 60 years old (average age: 64 years) who had been arrested for drunkenness were gleaned from the arrest ledger and interviews with 100 of those incarcerated and male.

RESULTS

Characteristics of elderly offenders. In contrast to adult offenders in general, elderly offenders were predominantly white. The number of males arrested was substantially higher than females arrested in all age groups. The reasons for women's arrests were usually relatively minor. Adults under age 60 were four times as likely to be arrested as adults over 60, and four out of five arrests of the elderly were for drunkenness. Such crimes as forgery, fictitious checks, desertion, malicious mischief, arson, extortion, prostitution, assaultive behavior, and murder were rare or absent in the elderly group. In 18 percent of the total subject population, alcoholic intoxication played an important role in arrests for offenses other than drunkenness.

Arrests for drunkenness and sexual offenses. The majority of the elderly persons arrested for drunkenness were male and between the ages of 60 and 69 years old. The survey of elderly males arrested indicated that two-thirds regarded their arrest to be justified. Those who objected to their arrests claimed that they had not been hurting anyone, that they had not been drunk, or that they had been in good enough shape to take care of themselves. About 97 percent stated that they had been treated well in jail, although a few complained about the uncomfortable sleeping accommodations and the food.

Elderly males arrested for drunkenness were not viewed as criminals either by the officers who arrested them or by the staff of the jail who supervised them. Prisoners, officers, and jailers all tended to consider the period in jail as a form of hospitalization. Similarly, arresting officers felt that the elderly prisoners were ill and in need of supervised care or protection. The treatment of elderly alcoholics as quasi-patients in jail settings appeared to be an alternative to unavailable medical care.

Only 4 arrests for sexual offenses were recorded for the 772 older patients during the 4-month study period. These were indecent exposure and superficial advances to children. The police detail assigned to sexual offenses revealed that they did not arrest persons of any age for minor nuisance sexual acts. Statistics from San Francisco indicate that hospitalization is not used as a substitute for arrest for sexual offenses of the aged. With few exceptions, hospitalization of elderly patients in whom sexual problems are noted results from behavior at home that is annoying to the family and that presents a problem for home care but cannot be labeled a sexual offense.

CONCLUSIONS

Eighty-two percent of the arrests of elderly individuals were for drunkenness, as opposed to 46 percent of arrests being for drunkenness for all arrests of persons age 18 years or older. Many of the 18 percent of the elderly subjects who were not arrested for drunkenness were arrested for crimes in which alcoholic intoxication played an important role.

If it were not for drunkenness, few older people would be arrested in San Francisco. The Uniform Crime Reports indicate that this situation may also exist nationally. This suggests that antisocial behavior subsides with age in the sense that issues and problems that produce anxiety are less common among the aging, or that visible antisocial behavior subsides with age in the same manner as narcotics addiction. Other possibilities are that older people learn to avoid trouble or have fewer motives for criminal behavior.

**PREVENTION AND
TREATMENT PROGRAMS**



PREVENTION AND TREATMENT PROGRAMS

Judith R. Vicary, Ph.D.

Early definitions of primary prevention proposed by the National Institute on Drug Abuse (1975b) focused on preventing or reducing mental, physical, emotional, or social impairment caused by using drugs. This concept was modified in the latter part of the 1970s to emphasize prevention as "a constructive process designed to promote personal and social growth of the individual toward full human potential" (National Institute on Drug Abuse 1975, p. 16) that then prevents or lessens possible impairment.

However, while most definitions of prevention suggest that all age groups are to be included in drug abuse prevention activities, most actual prevention efforts have, until recently, concentrated on youth populations, particularly around the "high risk" ages, e.g., adolescence. Because concern had not been expressed for the elderly as a population potentially at risk of substance abuse, few prevention services addressed their needs. Now an increased awareness of both the extent of the problem and suggested reasons why older people misuse or abuse various substances has prompted a number of agencies and organizations to begin to develop programs for this age group.

The National Institute on Drug Abuse (1980) describes prevention activities along a continuum, including--

Information modalities--Approaches that involve the production and/or distribution of accurate and objective information about all types of drugs and the effects of those drugs on the human systems.

Education modalities--Approaches that focus on skill building through use of well-defined and structured affective learning processes intended to encourage personal growth and development.

Alternatives modalities--Approaches that provide growth-inducing experiences through which individuals develop increased levels of confidence and self-reliance.

Intervention modalities--Approaches that focus on the reduction, elimination, and/or delay of drug use, drug-use-related dysfunctional behavior, and other problem behaviors prior to onset of serious, chronic, debilitating behaviors.

One of the frequently cited problems associated with many early drug education programs for young audiences was the emphasis placed on information or cognitive materials, often without adequate consideration of other factors that contribute to the decisions regarding substance misuse or abuse. With adolescent groups, information orientations were usually attempted first, through mass media or in classroom-based drug courses. Later approaches, reflecting the "personal and social growth" approach to prevention, included alternatives--projects designed to provide activities and self-fulfillment primarily through structured group involvement--and affectively oriented modalities and materials. Peer counseling has also been used extensively both for prevention and intervention activities. These methods are all designed to enhance the positive development and growth of the individual.

If drug misuse, that is, inappropriate use of drugs through error, lack of knowledge, or self-medication, is seen as the major problem of drug use among the elderly, then an informational approach should be of some value. However, if drug abuse by this age group represents deliberate coping behaviors to deal with psychosocial status factors, often similar to those reasons found for adolescent drug use, then prevention activities related to affective and alternatives modalities should be more appropriate. Insufficient data exist at present to determine conclusively the antecedents of elderly substance use behaviors, but many adolescent affective risk factors are similar to problems experienced in aging, e.g., low self-esteem, anxiety, depression, alienation, and reduced aspirations or motivation (Glantz 1981). Most authorities agree that older people are a vulnerable group, susceptible to normal aging as well as disease, bereavement, poverty, social

devaluation, and loss of roles; drugs and alcohol in effect become a coping mechanism to deal with a variety of psychosocial factors. For example, Rosin and Glatt (1971) found that elderly subjects with previously innocuous drinking behaviors listed the three major influences that exacerbated their alcohol abuse as retirement, loneliness, and bereavement. Carruth et al. (1973) and Simon (1980) note that older problem drinkers apparently drink as coping and escape measures to deal with loneliness, isolation, and other psychological pain. Literature regarding inappropriate legal drug use suggests a similar etiology and nature (Basen 1977; Heller and Wynne 1975).

However, it appears that primary prevention efforts aimed at the elderly are following an evolutionary sequence like that of adolescent prevention programming efforts, with initial efforts being information oriented, presuming that knowledge is the critical missing ingredient in decisionmaking about appropriate drug use behavior. If, as was found with youthful populations (Swisher and Hoffman 1975), drug information alone will not affect the older person's attitudes about or use of drugs, a more comprehensive approach will be necessary. With an elderly target population, factors such as loneliness, lack of self-esteem, fear, retirement, poor health, boredom, and bereavement all have a significant affective or psychosocial component, and emphasize the need for the intrapersonal and interpersonal education modalities. The growing evidence of the possible extent of the problem of later onset of misuse or abuse of drugs and alcohol by older people suggests that prevention programs should be designed specifically for this audience, addressing both the knowledge and the psychosocial factors that potentially lead to the problem behavior. Recent program developments have focused on these affective components, working with the individual's self-concept, interpersonal relations, and life satisfaction, for example, which may be found to be as important to older people as they are to youths in determining drug and alcohol behaviors.

Inappropriate drug use prevention programs for the elderly have been initiated by many types of agencies, particularly those already providing drug and alcohol services. Some local efforts are also sponsored by hospitals, industry or unions, and organizations whose primary responsibility is service to the elderly. Despite the growing awareness of the need for services, the limitations on professional staff and resources have often curtailed possible programming. The large numbers of elderly Americans and the comparatively small number of professionals available to work with older people make obvious the need to supplement professional services (Waters et al. 1979). Many health professionals avoid working with the elderly because old people are thought not to offer the challenges and rewards that are typically experienced in working with younger clients. To offset this problem paraprofessional peer counselors are being used in a number of different, not necessarily substance-abuse-related, programs and they seem particularly suited to fill the gap between services needed by the elderly and the actual services available. Their role has been explored in a variety of settings, and while the reasons for their use vary, in most health-related programs they have been found to be less threatening to many older persons than their professional counterparts. Butler and Lewis (1977) report that peer counselors provide new services in innovative ways, both acting as role models and having enhanced understanding of how to help their cohorts.

Agencies that have attempted to develop drug and alcohol abuse and misuse prevention programming have varied in the particular types of problems they have focused on. Some, particularly those emphasizing drug use services, focus their content on misuse of prescription and/or over-the-counter medication. In Orlando, Florida, Thee Door's outpatient counseling center cautions about duplication of prescriptions, use of outdated drugs, using other people's medications, and overdoses (Collub 1979). They also train service providers who work with the elderly regarding the types of problems encountered, referral sources, and so on.

A unique program was started in 1979 at the University of Minnesota through the College of Pharmacy. Their Older Adult Peer Counseling Program trains retired pharmacists to act as medication counselors on a one-to-one basis with elderly apartment residents in the Minneapolis area. The pharmacists learn counseling skills as well as an update on drug knowledge and medical problems of older adults.

Two landmark programs that have worked together in content development and implementation are the Augustana Hospital and Health Care Center in Chicago and the Broome County Drug Awareness Center in Binghamton, New York (Plant 1977). The Illinois project began a medications education program for elderly patients in 1975 that was quickly expanded to include 11 broader health education topics. Successful independent functioning is one goal, with medication safety, consumer awareness, and nutrition among the subjects covered. In addition, it is hoped

"to instill in the elderly a new understanding, respect and responsibility for the drugs they take . . . [and] to instill in health care personnel a better understanding and respect for the special medication problems of the elderly." The New York State program, begun in 1974, presents basic pharmacology and physiology information to senior citizen groups (Gaetano and Epstein 1977). Unrealistic expectations regarding drugs as well as lack of knowledge are addressed. The staff uses a "wise consumer" approach, including confidence building and some communications skills training.

Resource materials regarding the appropriate use of drugs by older people have also been developed for dissemination on a national scale to various agencies. The National Institute on Drug Abuse produced a comprehensive set of drug education materials, called Elder-Ed, in 1976-1977 (Staples et al. 1978). While the materials were initially designed for presentation by trained peers, there is now an additional film that provides the necessary information, suggestions, and discussion questions so that any group leader can present the Elder-Ed materials. Three stages in medication use are addressed, including communicating with doctors, buying drugs wisely, and taking drugs carefully. Supplementary written materials include a "Passport to Good Health Care," which is a comprehensive record to be filled out by a client, listing all necessary medical information in case of an emergency and with a record of all drugs being used. Elder-Ed has been distributed to every State and copies have been made widely available. Many programs have adopted this format rather than producing their own materials. For example, the Western Tidewater Mental Health Center in Virginia used the project for an intensive community awareness and education project in 1979-1980. Their evaluation indicated an information gain and an awareness of their medication responsibility for program participants. The New York State Division of Substance Abuse Services also developed a presentation format and additional materials to be used with the film portion of Elder-Ed, "Wise Drug Use."

Hoffman-LaRoche, through the social science department of Roche Laboratories, has generated a multimedia drug education campaign directed at the elderly and their service providers. Print, radio, and television are utilized to encourage a greater understanding of and responsibility for medicine use. Their Medication Education program includes topics for the older patient and for physicians, pharmacists, and nurses. Handout materials and public service-type magazine and newspaper advertisements were part of their public awareness efforts.

Some information dissemination prevention programs focus primarily on alcohol problems. One example is the Florida Citizens' Commission on Alcohol Abuse (DiNitto et al. 1981), which uses elderly volunteers in their education and prevention program. After recruitment, "key" elderly persons learn facts about alcohol abuse and then teach their peers about aging, stress, and potential alcohol abuse. They can also act as referral sources. This Positive Alternative Program includes extensive program development and evaluation of volunteers.

More frequently, however, both drugs and alcohol are included in information approaches. Luther (1981) reports on the use of an education specialist by the DePaul Rehabilitation Hospital's program, Alcohol and Drug Consultation for Seniors. Paraprofessionals are recruited and trained to work with senior groups on the unique needs of the elderly in medication and alcohol misuse. In Illinois, the Central Comprehensive Mental Health Center (1980) sponsors an Alcohol-Drug Prevention Education Program for senior citizens, which has a public information focus, warning of the dangers of combining over-the-counter and prescribed medications with alcohol. Three lectures are given to elderly groups, and a program evaluation pre/post survey is included.

The content of other prevention projects is not specific to substance misuse or abuse but rather uses the education approach to prevention and includes the affective modalities uses the education approach to prevention and to provide growth-inducing experiences to develop increased levels of confidence and self-reliance. It is hoped that the growth and development fostered by these programs will enable elderly individuals to avoid such problems as substance abuse. One example of a program that emphasizes a total approach instead of focusing on a single problem area is the Personal Growth for Older Adults (PGOA) program. The Continuum Center for Adult Counseling and Leadership Training at Oakland University in Rochester, Michigan, began the project in 1972 (Waters et al. 1979). Its broad goal is to "help group members cope more effectively with their developmental changes in aging." Participants go through a "life review" process that focuses on self-awareness, coping mechanisms, accomplishments, and self-appreciation. They also learn about problemsolving, resources and options available, communication skills, and identifying their own needs and values.

A supportive atmosphere is considered essential to the PGOA program and is provided by a professional counselor and several trained peer counselors. Both large group work and small group discussion time are included in the seven 2-hour sessions. The peer counselors are selected from previous participants and receive extensive training (ten 5-hour sessions) based on the Carkhuff counseling model. After becoming group leaders, the peers also attend inservice training days and meetings with their professional leader. Among the problems most frequently dealt with are relationships with family members, particularly adult children; concerns about health and dependency; feelings of loss, grief, and loneliness; and decisions about where to live and how best to use empty time. The emphasis here parallels the NIDA affective skill building prevention approach rather than the drug and/or alcohol information mode.

Another comprehensive approach developed from the findings of a treatment facility regarding the situation for older people in their area. The Eagleville Hospital and Rehabilitation Center in Pennsylvania (Leigh 1980) in 1978 expanded its role to include substance abuse prevention services for the elderly population of the county in which it is located. Following a needs assessment survey, the hospital worked with a group from a nearby senior center to form a self-help group called ALERT. Their extensive program topics include assertiveness, holistic health, interpersonal skills development, communications, stress management, and consumer awareness. Feelings of anxiety, powerlessness, and loneliness of members are addressed through an awareness, education, training, and action model.

The Andrus Gerontology Center at the University of Southern California, Los Angeles, also has a broad counseling service available to deal with a range of personal problems of older people, including those that might be related to substance abuse. Professional staff work closely with extensively trained (30 hours) peer counselors. Supervision, help, and inservice training are also provided. The elderly counselors offer support, issue clarification, and beginning problem-solving help to their clients (Waters et al. 1979).

A final example of a comprehensive program approach is the Peer Counseling for Elderly Persons project of the Santa Monica Bay Area Health Screening for the Elderly program. The clinic, recognizing that preventive health care for older persons had to include both physical and psychosocial services in a closely integrated manner, began their counseling program utilizing peer counselors in 1977. Trainees completed 2 months of preparation, meeting twice a week for 3 hours. Case supervision is provided by the agency's professional staff. Problems discussed by clients include depression, sexuality, alcohol and drug abuse, stress, and death and dying. The clients are predominantly low-income persons in poor health who are lonely, anxious, and depressed. Initial evaluations indicated improved self-confidence and life satisfaction; a reduction in loneliness, depression, and anxiety; and an increase in activity, exercise, and good sleep patterns.

The previous examples are representative of a growing number of primary prevention services available to the elderly. The sponsoring organization, staffing, and program content determine the type(s) of prevention offered, and consequently, the program's goals. Both misuse and abuse can be addressed, using drug information approaches and/or personal development and alternatives activities. Early intervention and referral may also be available. However, intervention activities also develop within the treatment agency framework, where they are thought to be early enough to prevent more serious abuse following occasional or newly initiated misuse behaviors.

Perhaps the most serious problem regarding treatment for the elderly is related to misuse and abuse of legal substances. Acute drug reactions caused by inadvertent misuse are seen primarily in emergency room settings and are dealt with in the medical setting. Of concern here are treatment services offered for older clients specifically, acknowledging in part the deliberate use/abuse of drugs and alcohol to deal with psychosocial factors. In Minnesota, for example, the Hennepin County Alcohol and Drug Access and Intervention Unit (Gollub 1979) in 1973 began a special outreach project for chemically dependent older people. Assessment, intervention, referral, and followup care are provided, with treatment options including a "hospital or nursing home detoxification center, drug treatment center, or other special program." The Ramsey County Senior Chemical Dependency Program, also in Minnesota, provides an additional and often critical service--advocacy for elderly clients who have been denied detoxification and medical treatment. Other treatment facilities in that State include the Queen Alcohol Treatment Program, Camellia House, and Bridgeway Center. The first of these is unique in that it offers a nursing home program for the chemically dependent, including those who are alcoholic. Counseling and industrial and recreational therapies are included, along with housing arrangements and later followup.

Camellia House is "geared to the slower paced elderly patients and patients with temporary or permanent physical or mental disabilities" (Collub 1979). Gestalt therapy and Alcoholics Anonymous are part of the program. Bridgeway Center provides services for the older chemically dependent person, treating mental, physical, and emotional illness.

The University of Tennessee's Mental Health Center offers group therapy sessions for the elderly with drug-related problems. The Senior Alcohol Services program in Vancouver, Washington, uses a three-phase treatment plan including motivational counseling, intensive inpatient treatment, and aftercare counseling. Families are involved in the process that includes counseling and education. Alta Bates Hospital's Care Unit in Berkeley, California, also involves significant others in dealing with the elderly's dependency, with family stability a key factor (Voorhees et al. 1981).

A program that combines alcohol and drug services in a comprehensive format for older persons is described by Opstelten (1981). The North of Market Senior Alcohol Program in San Francisco operates "Island of Sobriety for the Frail Elderly," a continuum of care concept, ending with a followup back in the community. In Toronto, a therapy program based on improving interpersonal relationships and increasing activities for the elderly alcoholic is stressed (NIAAA 1977). Loneliness and lack of self-worth are seen as major problems with this group, and therapists structure the program to include games, trips, carpentry, and gardening, for example. Initial studies indicate that improved interpersonal relations and involvement corresponded to a reduction in drinking and abnormal behavior.

Other suggestions regarding substance abuse treatment programs for older persons (Dunlop 1980) note the need for modification of usual counseling methods, recognizing the reluctance to self-disclose, the need for reminiscing, and a preference for "social amenities." Glasscock (1981) adds that motivation to live and a conducive environment in which to being a new living pattern with a community recovery support network are essential to elderly treatment success.

A final issue relevant to therapy for older individuals is that of the therapeutic use of alcoholic beverages for geriatric patients. A number of studies have been conducted with subjects in a variety of institutional settings. Most focused on sociobehavioral outcomes such as attitude, morale, and interpersonal relations, after the controlled introduction of beer and/or wine by staff at selected times. Both physiological and psychological factors have been measured. According to Mishara and Kastenbaum (1980, p. 161), "Use of alcoholic beverages in moderation by both high- and low-functional status institutionalized elderly people is not contraindicated under the circumstances where participation is voluntary and physician's approval is obtained. There is evidence that participants may accrue benefits from the availability and consumption of alcoholic beverages, but for some people the alcohol may be minimally important compared to the social setting itself. There are indications that prolonged (18-week) exposure to a situation with alcoholic beverages or prolonged moderate consumption has beneficial effects."

In summary, it is evident that elderly drug misuse and abuse prevention and treatment efforts have been seriously hampered by a lack of information about the nature and extent of the problem. The elderly are consumers of huge quantities of drugs of all kinds, and they are significantly at risk for inappropriate use of these substances. Yet the extent and the personal, behavioral, and social correlates of the use, misuse, and abuse of these substances have not been well identified and measured. The information that is available suggests that prevention and treatment efforts will have to involve the educational as well as the informational modality. Growing social awareness of elderly substance use problems will only be more frustrating if it is not accompanied by research, program development, staff training, interagency cooperation, and advocacy initiatives. And, finally, it must be continually recognized that the older consumer cannot be ignored in these processes, remembering that the final responsibility for substance-related behaviors lies with the individual.

DRUG	Alcohol; drugs; tobacco; food
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Users; misusers; abusers
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Theoretical/critical review; literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	45

PURPOSE

The theory and research on alcohol and drug abuse have tended to focus on individual drugs. However, a more general focus on the concept of substance abuse, including abuse of alcohol, licit and illicit drugs, tobacco, and food, may provide a more integrated research framework. Among the theories developed within this framework is the suggestion that common processes may underlie the use and abuse of various substances. Thus, the substance abuse model begins with the concept of health status and considers the role of substance use/abuse as the individual or combined substances affect the user's level of health.

The author analyzes the psychosocial factors related to problems of substance use and abuse among the elderly. The model suggests that food abuse and tobacco addiction should be considered at least as important as alcohol and drug abuse and that common causal factors should be sought.

SUMMARY

Seligman's (1975) "learned helplessness" theory is relevant to the issue of substance abuse problems in the elderly. This theory initially suggested that persons exposed to unpredictable and

uncontrollable events were characterized by emotional changes (depression), cognitive deficits (a belief that things could not be changed), and a motivational deficit (a tendency to give up). Reformulations of the theory have emphasized the crucial importance of the individual's belief system and resulting interpretations of events. Since much of the research on learned helplessness has taken place in laboratory settings, it is essential to establish its existence in natural settings.

Life-event changes, such as relocation and death of significant others can be viewed as analogous to the unpredictable and uncontrollable events produced in laboratory settings. One literature review revealed that both the death of a significant other and relocation were important factors in predicting death in some elderly persons, although retirement did not seem to play a significant role. Other researchers have concluded the loss of control and subsequent feelings of helplessness that may occur in response to a life crisis may produce increased mental and physical distress among the elderly. Increased stress may lead to the use of various substances to alleviate this stress, perhaps by providing elderly persons with an experience over which they have some degree of control.

Thus, substances may be viewed as agents of control in that, initially at least, they predictably generate a pleasurable effect. Given the type of stressful event and the individual's belief system and other characteristics, the individual's coping strategy may result either in learned mastery and successful coping or in learned helplessness and in such effects as depression, substance use or abuse, or suicide.

In the extreme, substance abuse may be conceptualized as a form of suicidal behavior, an indirect self-destructive behavior. Suicidal behaviors may be either acute, involving direct actions such as a deliberate drug overdose, or chronic, involving long-term behaviors such as narcotic addiction. Suicidal motivations may be intentional, unintentional, or subintentional. An example of a subintentional motivation would be noncompliance with a physician's orders regarding medications, while an example of unintentional suicidal motivation would be alcoholism, with its attendant ill effects on health. For some elderly persons, the relationship between substance abuse and individual self-destructive behavior may be a function of the range of options available. For example, a decision to take or not to take medication may be the final choice the elderly person has the power to make.

The elderly person's ability to predict or control health status may be as important as the ability to make choices in the area of life events. Individuals who believe that they have some control over the environment appear to behave in more adaptive, healthy ways than do persons who believe that they have little control over the environment.

CONCLUSIONS

The analysis of behavioral choice and its relationship to perceived psychological control suggests that the individual's belief system has a strong effect on behavioral choices. Thus, the levels of substance use, misuse, and abuse of the elderly may result from the extent to which the elderly believe that they can predict and/or control environmental events.

Creedon, M.A. Social and organizational influences on the use of psychotropic drugs in nursing homes. In: Faulkinberry, R., ed. Drug Problems of the 70's. Drug Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980. Pp. 167-170.

DRUG	Prescription psychotropic drugs
SAMPLE SIZE	20
SAMPLE TYPE	Staff and residents of nursing homes
AGE	Residents: aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Baltimore City and County, Maryland
METHODOLOGY	Multivariate analysis
DATA COLLECTION INSTRUMENT	Questionnaires
DATE(S) CONDUCTED	April 1977
NO. OF REFERENCES	10

PURPOSE

Nursing homes have been accused of using psychotropic drugs to control residents and to decrease demands on staff. The results of a 1975 experimental study by the author suggested that opportunities for social interaction might reduce symptomatic behaviors of residents that cause nursing home staff to administer psychotropic drugs. As a result of this research, a survey research project was conducted in the Baltimore, Maryland, area to test empirically two propositions: (1) that psychotropic drug use is influenced by other organizational characteristics in nursing homes and (2) that social interaction may be viewed as an alternative to such drugs for at least some nursing home residents.

METHODOLOGY

A directional sampling technique was used based on the proportion of bed-days paid by Medicaid in 1976, since payment mechanisms were considered important to the frequency of psychotropic drug use. All nursing homes in Baltimore City and Baltimore County licensed for skilled care were ranked in terms of Medicaid bed-day proportions. The eight homes with the highest ranks and the eight with the lowest ranks were approached for participation. Homes that refused to take part were replaced with the next home in the rank order. Four additional homes were selected by the ranking method in order to include some nonprofit homes.

Data were gathered for 30 randomly selected residents in each facility from the total who were present for the entire month of April 1977. Information covered the total drug use for the entire month, all diagnoses, age, sex, and length of stay. Day- and evening-shift ward personnel provided estimates of visits per week from family and friends. Organizational data on the number of residents, type of staff, staff turnover, and resident release rate to the community, and number of volunteers were obtained by questionnaire from each facility's administration. The activities director at each facility provided information on the numbers and types of organized activities and the level of interaction usually involved.

RESULTS

The frequency of use of psychotropic drugs ranged from 47 doses per resident per month to 112 doses per resident per month, with clusters around 50 to 60 doses and 80 to 90 doses. The frequency of psychotropic drug use was positively associated with staff-resident ratio, particularly when staff-resident ratio was controlled and when the level of social interaction in organized activities was controlled. Staff are likely to treat residents with the techniques of care they have been trained to use, i.e., psychotropic drugs for symptomatic behaviors.

Multiple medications were the rule, with the average resident receiving three different kinds of medication, including a psychotropic drug. The payment mechanism seemed to have no influence on psychotropic drug use.

Increased family visiting was strongly related to use of major tranquilizers, although there was a slight but insignificant positive association between family visits and minor tranquilizer use. The relationship between overall psychotropic drug frequency and visits by volunteers was very weak when one institution with high volunteering and high psychotropic drug frequency was excluded.

The number and frequency of organized activities had no relationship to psychotropic drug frequency, but increased activities involving social interaction were related to lower use of psychotropic drugs. Resident characteristics seemed to have little relationship to psychotropic drug frequency.

CONCLUSIONS

Some types of social interaction, especially that with the family, seem to be related to less use of psychotropic drugs. In addition, the nursing home's relationship with the community as indicated by frequency of family and volunteer visiting, its mixture of professional staffers, and its structure of daily living for the residents seem to be the basis for the frequency of psychotropic drug use. Nursing homes with frequent and varied organized activities that gain participation from a significant proportion of the resident population are less likely to depend on psychotropic drugs than homes that fail to engage residents in such activities. The four nonprofit homes, which were all sponsored by churches, had much more psychosocial programming and many more activities and thus less drug use than did the other homes.

Although Medicaid's proportion of payments for care seemed to have little influence on psychotropic drug frequency, Medicaid may have much indirect influence because it excludes support for psychosocial programming or family or volunteer visiting. Since three-quarters of the nursing home industry is profit oriented, specific rewards for such activities might foster their expansion. The use of psychotropic drugs in nursing homes should be more closely monitored. Inservice education on prescribing medications for the frail elderly should be mandatory for physicians. Other professionals also need thorough education regarding care techniques in the institutional setting and the need for a balance among them.

Gaetano, R.J., and Epstein, B.T. Strategies and techniques for drug education among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly. Springfield, Ill.: Thomas, 1979. Pp. 163-177.

DRUG	Prescription and over-the-counter drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Description
DATA COLLECTION INSTRUMENT	Observations; program records
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	23

PURPOSE

Even though patients are the persons responsible for coordinating their own health care, they are the least knowledgeable members of the health team. Patients are usually not given enough information to safely and effectively handle their responsibilities as members of the health team. The dangers of this unbalanced system are illustrated by the difficulties encountered by many elderly persons in managing a medication regimen. A consumer drug education program is one way to deal with this problem.

This paper describes the problems related to drug treatment of the elderly and presents a curriculum developed to educate elderly persons about the use of prescription drugs. Practical considerations involved in educating older adults are also discussed.

SUMMARY

Elderly persons constitute a growing population segment that has more chronic medical conditions and uses more drugs than other age groups. Various physiological aspects of aging contribute to the greater risks of side effects or ineffectiveness among drugs prescribed for the elderly. In addition, elderly persons are often unaware of what constitutes a side effect, may forget to

take medication, may borrow or lend medicines, or may engage in numerous other potentially dangerous practices with respect to medications. The general public's unrealistic expectations regarding health care, health professionals' often discriminatory attitudes toward the elderly, and irresponsible advertising by some patent drug manufacturers all contribute to the misuse of drugs.

The authors' 3 years of working directly with elderly consumers in separate programs in the northeastern and midwestern United States have indicated that education can change elderly persons' drug use behavior. A drug education program's general goal is to produce a well-informed patient who is equipped with the knowledge needed to develop safe and effective drug-taking behavior.

A pilot curriculum was developed, based on the awareness that most people over the age of 60 have little or no formal health education and have obtained most of their information or misinformation from friends, relatives, and the communications media. Since most older adults know little about how the human body functions, basic facts on anatomy and physiology should precede any practical discussion of drug use. Pharmacology should also be included, since elderly persons need to know of the aged body's slower rates of food and drug metabolism. The subjects of drug-drug and drug-food interactions should be addressed, perhaps using the example of how caffeine and nicotine can interact with a decongestant.

The section on drugs and disease should relate bodily dysfunctions to normal anatomy and physiology and show how drugs can promote a return to homeostasis. The monitoring of personal drug use behavior should also be covered, with emphasis on how to store and use drugs, warning signs of adverse reactions, and the kinds of feedback physicians need from patients. Available resources in the health delivery system should also be identified. Special class projects can include field trips to emergency rooms, hospital wards, and drug manufacturing firms.

Drug education programs can be instituted in established senior citizen groups or in groups gathered specifically for health education. Drug education programming can consist of two phases: less formal education to senior citizen groups and a more structured curriculum. It is important to choose instructors who can establish a good rapport with the group, since drug education can be a potentially threatening topic to older adults. The instructors should have positive attitudes toward older people in general. Since discussions following the formal talk are often the most valuable part of the session, the instructor should have a broad knowledge of health and health care.

The instructor also needs to take elderly persons' reduced visual and auditory acuity into account. The physical environment for learning should also be considered.

CONCLUSIONS

Consumer education should be the main emphasis of a drug education program for older adults. Professionals, too, need education regarding the special problems of medication use among the elderly.

Group health education can help to create positive health behaviors in the elderly. A more comprehensive program with the potential for correcting negative behaviors would include consumer and professional education, a drug information hotline, medication counseling, crisis intervention, and health referral and followup. If professionals can take an aggressive approach to consumer health education, they can begin to eliminate the unnecessary complications of drug therapy.

DRUG	General
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Elderly persons
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not applicable
NO. OF REFERENCES	8

PURPOSE

An increasing amount of literature has been devoted in recent years to the problem of drug misuse by older persons. Much of the misuse that has been identified among the elderly may be the result of the drug taker's ignorance. The present study examines problems in medicating the elderly and presents methods for properly educating elderly patients in drug administration.

SUMMARY

One of the frustrations that health care practitioners have in dealing with older patients is the fact that chronic conditions make up by far the greatest number of medical problems of the elderly. Older patients are frequently ignored because there are no quick cures for chronic conditions and because older patients are perceived as having a low social worth, as being unattractive, and as providing no rewards to the caregiver.

Health caregivers should be aware of a number of social messages that some elderly patients attach to taking drugs. The elderly may either play at or rebel against the role of a sick person. Some elderly persons avoid taking drugs because they feel that chemical intervention threatens their independence.

The objectives for a program of patient drug education are to promote patient independence, to prevent institutionalization, to aid in rehabilitation, to ease patient anxiety, and to assure that drugs are accurately dispensed and administered. Program administrators must first determine what doses of which drugs patients are taking. It is vitally important that the patient know the reasons for taking a particular drug, what it is called, when to take it, and under what conditions to take it.

The health care professional in charge of the program should carefully explain the use schedule, checking the patient's comprehension and enlisting the assistance of the patient's friends or relatives. A typed list should be provided at this time to be used as a teaching aid and as a reminder for the patient. Instructions should be clear, typed or in capitals, and free of jargon. A chart or list, arranged in chronological order, should explain the drug-taking schedule in relation to mealtimes. Special instructions on what not to do should be included. It is highly desirable to minimize the number of different medications taken.

CONCLUSIONS

Physicians frequently do not have time to explain treatments for particular illnesses. Nurses or other health care professionals can relieve much patient anxiety and assure that the prescribed program of treatment will be carried out by explaining drug use and answering patients' questions.

Whittington, F.J. Drugs, aging, and social policy. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly. Springfield, Ill.: Thomas, 1979. Pp. 190-220.

DRUG	Prescription and over-the-counter drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Users
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Theoretical/critical review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	73

PURPOSE

Literature has documented the seriousness of the problems that older people encounter in the course of receiving and taking drugs. However, further discussion is needed of the ways in which public policy has systematically helped to create, sustain, and exacerbate drug misuse both by and of the elderly. Public policy can be either a statement of the general principles that guide specific acts, or it can be acts of powerful organizations and groups not yet regulated by the Government.

The primary aim of this study is to examine the role that physicians, health institutions, and the drug industry play in setting drug policy for older people, the problems each engenders in the exercise of its role, and the relationship each bears to public policy. As an introduction, the "cultural policy" of American society that underlies many of the drug policies affecting the old is delineated.

SUMMARY

Drug use in America. Americans, including the elderly, fervently believe in the ability of science to deliver the ultimate cure for all physical and social ills. Related to this attitude is

the widespread belief in the near infallibility of the physician: if a doctor prescribes a drug, most people never question whether it is the correct one, in the proper dosage, applied at the appropriate time. The willingness to medicate is also associated with cultural reliance on the mass media as a source of information. In the final analysis, Americans want to believe that problems can be alleviated in a neat, fast, painless way.

Drugs, aging, and the physician. Most of the drug problems experienced by older people arise from the doctor-patient relationship. Because physicians receive little training in geriatric medicine and are anxious to effect a cure, they often misprescribe psychoactive drugs to the elderly. Moreover, heavy reliance on drug therapy and lack of knowledge about contraindications and side effects mean that the physician must rely heavily on drug company literature. Patients contribute to overmedication by having excessively high expectations of physicians and by defining the nature of their own illness and the medication needed to treat it before they even see a physician. Many older patients also fail to comply with physicians' orders for the use of medications, usually in the direction of underuse.

Drugs and the nursing home. Nursing homes today receive the vast majority of the medically and mentally incompetent elderly who must be institutionalized. Unfortunately, the care in such institutions is not carefully monitored, and drug abuse problems have occurred. The types of misuse most commonly cited are overmedication, undermedication, misadministration, and unauthorized or potentially dangerous drug experimentation. Reasons for the drug problem include the already established physical or psychological dependence of older persons entering nursing homes; the desire of nursing home staff at all levels to control patients more easily; and the emphasis of nursing homes on profit rather than on rehabilitation, leading to such practices as kickbacks from in-house pharmacies. Use of drugs such as beer and wine for social therapy and of other drugs to alleviate even minor pain contribute further to the problem.

Drugs, aging, and the drug industry. The drug industry, including both pharmaceutical companies and pharmacists, must shoulder part of the responsibility for drug misuse. Despite idealistic claims of the industry, its real goal is to make money, and the development and sale of drugs is the means to this end. Drug development is expensive, and to maximize profits companies must carry out aggressive sales campaigns directed at physicians. This accounts for the success of tranquilizers in recent years. However, most advertisements minimize the real and potential dangers of the drugs they extol.

The drug literature also tends to expand the number of nonmedical complaints with which the drugs may be expected to deal and to promote tranquilizers as especially suited to nursing home patients because of the benefits to all concerned. Drug companies also tend to abandon old medications whose ill effects have become known in favor of new ones whose side effects are not yet understood. Community pharmacists play little active role in fostering drug misuse among their aged customers, but they have failed to assume their potentially central role in the area of health and drug education.

Elderly drug policy proposals. A number of changes are needed in public policy regarding the elderly and drug use. The elderly need to be reeducated to a view of drugs emphasizing healthy skepticism toward their miracle properties and fostering an appreciation of nonintrusive therapies. A national reporting system is needed to monitor drug problems, including those of the elderly. Physicians need better training in pharmacology and geriatrics and should update their knowledge of geriatric pharmacology without depending on drug companies. Physicians should also be encouraged to seek nonchemical therapies for elderly patients' problems.

Another needed innovation is a national drug-utilization review system that would establish prescription guidelines and periodically review physicians' prescribing habits. The widespread acceptance of Health Maintenance Organizations, which provide prepaid, comprehensive medical care, might also curtail drug problems among the elderly.

The Government at all levels should begin to enforce vigorously the many laws already available to control therapeutic drug abuse of nursing home patients. Only licensed nursing personnel should be allowed to dispense medications in nursing homes. Nursing homes should intensify their efforts to develop social and psychological therapies to deal with the causes of patients' problems rather than with the results.

Changes in drug industry policies should include stepped-up research on drug dosage and side effects, broadened regulatory policies on drug advertising and promotion, and development of

the pharmacist's role as a monitor of drug-prescribing and drug-taking habits and as a patient counselor on drug and general health matters. Major efforts must be undertaken to extend community medical and social programs, such as home health care and community mental health programs. Finally, broad-ranging research must focus on such problems as overmedication of the elderly in nursing homes, the drug-taking habits of the elderly in the community, the physician-elderly patient relationship, the susceptibility of the elderly to drug company advertising, reliance of older people on folk medicine, and the relative effectiveness of social and drug therapies. Research methodologies must also be developed for evaluating the effectiveness of various drug education or control programs.

CONCLUSIONS

The drug abuse problem among the elderly is associated with patient-doctor relationships, treatment of the elderly in nursing homes, and approaches and advertising of the drug companies. Major policy changes are needed in all of these areas to control misuse of drugs by elderly patients.

Becker, P.W., and Conn, S.H. Beer and social therapy treatment with geriatric psychiatric patient groups. Addictive Diseases: an International Journal, 3(3):429-436, 1978.

DRUG	Beer
SAMPLE SIZE	60
SAMPLE TYPE	Hospital psychiatric patients
AGE	Aged (range: 54-89; average: 69)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Norristown, Pennsylvania
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Patient Orientation Questionnaire; Behavior Rating Scale; Dimensions of Morale
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	11

PURPOSE

The use of alcoholic beverages for medicinal purposes has been proclaimed for centuries. In recent years, a number of studies have demonstrated the therapeutic value of serving beer daily to male geriatric patients. The present study examines the effects of beer and social therapy treatments on the behavior of elderly institutionalized psychiatric patients.

METHODOLOGY

The study sample consisted of 60 patients, 30 male and 30 female, from the Geriatric Unit at Norristown State Hospital in Pennsylvania. Their ages ranged from 54 to 89 years, with an average of 69 years. About 65 percent suffered from chronic brain syndrome, while the rest had functional psychoses.

Patients were grouped randomly based on combined scores from two instruments, a Patient Orientation Questionnaire (POQ), including 10 items from the Mental Status Questionnaire and 21 items from the Dimensions of Morale. A Behavior Rating Scale was also constructed for staff use, with five modified items from the Physical Self-Maintenance Scale and 15 modified items from the Instrumental Activities of Daily Living Scale.

A total of 3 groups of 20 patients each received either beer and group socialization opportunities (group 1), fruit juice and group socialization opportunities (group 2), or nothing (control group). Researchers observed social activities of groups 1 and 2 during 1-hour group sessions on weekdays. After 11 weeks, the POQ and BRS were readministered. At the end of the study, 16 patients remained in each group.

RESULTS

The different group treatments failed to bring about significant changes in patient behavior measured outside the group sessions by the POQ and BRS instruments. However, the increase in social activity ratings for patients in the beer groups' sessions was statistically significant over the 11-week period, while subjects in the fruit juice group showed no significant change in their ratings. Medications prescribed for patients in the present study were not varied during the test-retest interval.

The social milieu therapy provided during group sessions did not result in behavioral changes either during the meetings or on the ward. Patients in all three groups continued to participate in active treatment programs providing social experiences through recreational and occupational therapy, as well as outdoor activity.

CONCLUSIONS

The present study confirms the finding in other reports in the literature that social activity is enhanced in groups of elderly patients when beer is served. Other studies, however, suggest that improvements in both psychiatric status and ward behavior adjustment are closely linked to the use of psychotropic medications. Further study is needed on the interaction of beer therapy with various medication dosages since it may be this interaction that produces the behavioral change noted, and not the beer alone.

Gollub, J. Psychoactive drug misuse among the elderly: A review of prevention and treatment programs. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: The University of Southern California Press, 1978. Pp. 84-102.

DRUG	Prescription drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Misusers
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Cross-sectional
METHODOLOGY	Theoretical/critical review; literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	25

PURPOSE

The elderly consume over 25 percent of all prescription drugs. An increasing proportion of these prescriptions are for psychoactive drugs (e.g., major and minor tranquilizers, antidepressants, stimulants, sedatives, and hypnotics). There is growing evidence of intentional and non-intentional misuse of psychoactive drugs by the aged, often resulting in physical and social harm. Misuse may be the result of professionals' actions (i.e., inaccurate diagnosis and drug treatment, polypharmacy without regard for drug interactions, or deliberate overmedication). Elderly persons themselves may be responsible for drug overdoses, misuse of drugs due to organic brain disease, use of multiple prescriptions or excessive use of prescriptions without physicians' authorization, drug exchanges, or use of expired drugs. A limited number of treatment programs exist to limit misuse.

The present study examines five types of programs existing to curb drug misuse by the elderly. These programs focus on improving diagnostic procedures, bettering prescription controls, improving drug administration procedures, monitoring drug prescription, and reviewing drug utilization.

SUMMARY

Accurate diagnosis in the treatment of the elderly is crucial to the reduction of drug misuse. Changes that occur in the social life, physiologic structure, and psychosocial environment of the older person often produce symptoms deceptively similar to those of more serious disorders, such as organic brain syndrome. Failure to diagnose psychiatric disturbance can lead to faulty treatment and create new medical problems for the older person. The probability of nondiagnosis of mental disorder in the elderly patient, in whom an underlying mental disorder may be masked by a somatic complaint, is higher than 50 percent, which underscores the need for accurate diagnostic criteria applicable to older populations.

In response to the problems of compatibility of individual patients with particular drugs, pharmacists and physicians have evolved guidelines for use in prescribing for the elderly. The Lamy approach (Lamy and Vestal 1976) stresses thorough drug histories, periodic review of drug consumption, and the importance of accurate pharmacy records and labeling. The Hall (1973) approach requires knowledge of drug action, use of the lowest effective treatment dose, use of the minimum number of drugs necessary, avoidance of drugs for treating symptoms rather than causes, weighing of benefits against the side effects of drugs, and use of drugs for only as long as necessary.

Several approaches to drug administration have been introduced to avert specific types of misuse. Libow and Mehl (1970) have developed a system for teaching older persons how to administer their own medications while they are still in the hospital, under the direction of the medical staff. The Ayd (1975) approach suggests a program of once-a-day dosage as a means of reducing non-compliance, the hazards of polypharmacology, and the unnecessary use of psychoactive drugs. One or two doses can be administered once or twice a day in the morning and/or evening so that a hypnotic is not necessary, the patient is asleep after administration, and outpatients can handle self-medication.

Formalized methods for monitoring drug use have long existed as a means of managing medical supplies. Pharmacists, hospitals, and nursing homes have long had the opportunity to check informally drug prescriptions both by reviewing amounts and dosages in the dispensing area and by evaluating the appropriateness of drugs selected in the ward. The ongoing medical audit of care normally carried out by hospital review committees generally includes a review of the treatment regimen.

Methods for monitoring drug use have become highly technical in recent years. For example, computer drug utilization review (DUR) programs are used in institutional studies of patient medication and in the community to identify patterns of drug prescription. The Los Angeles County-University of Southern California Medical Center system combines on-line prescription processing and review procedures to prevent excessive dispensing of drugs and harmful drug interactions, to ensure proper dosage, to study drug usage patterns, and to implement inventory control. The Drug Intake Management and Evaluation System is a diagnostic, information storage and retrieval system designed to monitor the use of psychoactive drugs in both hospital and outpatient clinical settings. In pharmacies and community clinics, the most common and economically feasible alternatives are manual monitoring systems. To monitor drug use in institutions the DUR process has been mandated by law.

A 1971 study by the Appalachian Regional Hospital's pharmacy staff (Solomon et al. 1974) indicates that the use of medical profiles by pharmacists enables them to detect potential therapeutic problems that would otherwise go undetected for extended periods of time. Pharmacist intervention would appear to be especially valuable in light of the estimated 25 to 59 percent error rate in self-medication by unmonitored users. The 1972 California Regional Medical Programs Area V study (Cheung and Kayne 1975) documents the contributions of pharmacy monitoring services to skilled nursing facilities. The system provides for patient drug histories and drug profiles, drug and physician order reviews, monitoring of drug therapy response and adverse drug reactions, and inservice education for nurses, as well as consulting on drug therapy problems. Results indicate reduction of medical error, of inappropriate drug use, and of adverse drug reactions, as well as improved cost effectiveness for patient care.

Concern for the monitoring of drug use has led to the development of training workshops and explanatory manuals by pharmaceutical associations. One syllabus for a drug monitoring course recommends that all patients be viewed as potential drug abusers, that risk factors potentially contributory to drug abuse be identified, that patient education be improved, and that extensive

patient records be maintained. Patients should also be informed of potential side effects of medications (California Pharmaceutical Association 1976).

Drug utilization reviews, required by law in skilled nursing facilities, serve to identify such problems as physicians' carelessness in prescribing or failure to prescribe necessary laboratory tests. Review committees suggest corrective measures such as staff and physician education. The PAID program is an example of retrospective intervention through utilization review. Under the program, the PAID Prescriptions Company monitors the drug consumption of patients in North Carolina who are covered by Medicaid. Six pharmacists and a physician from four geographic areas review monthly printouts of drug purchases and inform local physicians and pharmacologists of unnecessary and inefficient drug use. The system has brought about a reduction in costs to the States and the Federal Government. The program has immense practical potential for application in evaluating psychoactive drug use among older persons.

CONCLUSIONS

Tendencies toward improved diagnostic procedures, improved prescription controls, improved drug administration procedures, drug prescription monitoring, and drug utilization review indicate a strong trend in the development of more rational use of drugs, both psychoactive and nonpsychoactive. These programs are promising as a means of reducing drug abuse--at any point in the individual's pattern of drug consumption, physicians, nurses, or pharmacists can take preventive or interventive action.

DRUG	Psychoactive drugs
SAMPLE SIZE	Not applicable
SAMPLE TYPE	Noninstitutionalized elderly misusers
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not applicable
METHODOLOGY	Literature review
DATA COLLECTION INSTRUMENT	Not applicable
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	32

PURPOSE

Laypersons and professionals alike are realizing that drug abuse is a public health issue that extends throughout the life cycle, including old age. A number of researchers document widespread drug abuse in nursing homes, but few social scientists address psychoactive drug use among noninstitutionalized elderly persons. This study provides an overview of reasons for psychoactive drug misuse by the elderly, of the role of physicians and the pharmaceutical industry in drug abuse by the elderly, and of specific treatment and prevention policies.

SUMMARY

Psychoactive drugs are mood-changing substances that alleviate psychic distress and are used as adjuncts to the treatment of various physical disorders. A variety of tranquilizers, antidepressants, sedatives, and stimulants can be purchased over the counter. People over 55 years old compose the largest group consuming these and other legal drugs. Men and women over age 65 consume more than one-fourth of all prescription medications. The drugs most frequently prescribed for the elderly are diazepam (Valium), chlordiazepoxide hydrochloride (Librium), tranquilizers, and propoxyphene hydrochloride (Darvon). A total of 80 percent of the acute drug reactions among older people involve misuse of a tranquilizer or sedative. A third of the

over-60 population ingest five or more drugs simultaneously in addition to coffee, over-the-counter medications, and alcohol. While the chronic diseases of advancing age require use of such therapeutic drugs as heart medications, diuretics, tranquilizers, and sedatives, the last two of these drug classes are often prescribed for symptoms unconnected to chronic disease but rather for vague symptoms such as anxiety.

The drug prescription process legitimizes the physician's powerful role as knower and healer. Unfortunately, physicians often lack sufficient knowledge of the complex effects of many drugs, especially when these drugs are new and are administered in combination. Further, many physicians are overworked and have little background preparation or time to review the special needs of the geriatric patient. They also frequently do not understand the effects of medications, even at reduced dosages, in older people.

Drug companies spend millions of dollars annually to sell drugs to physicians. Pharmaceutical advertising is apparently very successful: not only have sales increased enormously since 1956, but the media have made the public more receptive to drug use. Psychoactive drugs are often advertised as subtle methods of social control over older people, who are depicted as childlike, dependent, senile, uncooperative, and isolated. Slick advertising techniques serve to persuade both physicians and general readers that drugs are the solution to both physiological and emotional complaints of the aged. Techniques include pseudoscientific titles and captions, intricate layout designs, exaggerated claims only partially supported by research, sexual come-ons, and appeals to physicians' consciences. Thus, vested interests have permeated professional behavior and have endangered the lives that professionals are bound to protect.

CONCLUSIONS

Because of the excessive use of psychoactive drugs in the treatment of vague psychological symptoms in the elderly, research on the effects and interactions of these drugs is urgently needed. Physicians should warn older persons of the potential dangers of drugs and should request that pharmacists label drugs thoroughly and in large, legible type. Treatment efforts can extend to lobbying local mental/medical health agencies for reeducation programs for patients, physicians, and psychiatrists, as well as for the establishment of therapeutic communities. Telephone hot-lines, recreational activities, church groups, and encounter gatherings can provide drug information and reduce the dependence of older people on psychoactive substances. Strengthening of legislative guidelines on the advertising of psychoactive drugs is also recommended.

Ingman, S.R.; Lawson, I.R.; Pierpaoli, P.G.; and Blake, P. A survey of the prescribing and administration of drugs in a long-term care institution for the elderly. Journal of the American Geriatrics Society, 23(7):309-316, 1975.

DRUG	Prescription drugs
SAMPLE SIZE	131
SAMPLE TYPE	Residents of a long-term care institution
AGE	Aged
SEX	Not specified
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Connecticut
METHODOLOGY	Descriptive study
DATA COLLECTION INSTRUMENT	Institutional records; interviews
DATE(S) CONDUCTED	October 1, 1970; August 1971
NO. OF REFERENCES	19

PURPOSE

The fact that more drugs are prescribed to the elderly than to younger persons is well known, as is the vulnerability of elderly patients to adverse drug reactions. A preliminary study by the authors of this report revealed that a high proportion of patients in one long-term care institution were receiving psychotropic drugs. The present study constitutes a more detailed examination of patterns of drug administration in the same facility.

METHODOLOGY

The 131 subjects were residents of a 300-bed Connecticut institution providing various levels of care. The subjects came from three distinct areas of the institution: an area mainly for severely brain-damaged persons, an area where residents were ambulatory and more self-sufficient, and an extended care unit for the maximally disabled and for patients recently discharged from a hospital. The study focused on the use of hypnotics, analgesics, minor tranquilizers, major tranquilizers, antidepressants, psychostimulants, skeletal muscle relaxants, antiparkinson drugs, autonomic agents, and cerebral stimulants. All these drugs have general effects on the nervous system.

Drug prescribing was examined for 1 day both before and after a policy change requiring each physician to rewrite all drug orders every month instead of renewing previous orders. The followup survey was conducted 10 months after the policy change. The institution's records and interviews with the patients and staff were used to generate data on behavior, level of physical dependency, demographic characteristics, and prescribing patterns. A physician and a pharmacist reviewed the lists of drugs prescribed to determine the number and types of drugs, the numbers of substances present in each drug, the number of questionably effective drugs prescribed, whether a drug was prescribed on a discretionary basis, and whether or not the drugs were administered.

RESULTS

The average number of neuroactive drugs prescribed (2.1) was distinctly different from the average number administered (1.3) because of the large number of discretionary (pro re nata or prn) prescriptions. More neuroactive substances were prescribed for patients with superior mental status and minimal physical disability. The difference between the number of drugs prescribed for the high and low groups was 1.7 for mental status and 2.8 for physical status.

The most common neuroactive drugs prescribed were analgesics, major tranquilizers, and hypnotics. Questionable prescribing practices were demonstrated by 20 patients' receiving drugs listed as "not recommended" in the American Medical Association Drug Evaluation. Twenty-three of these prescriptions were for propoxyphene compound.

The survey made 10 months after the policy change requiring monthly rewriting of orders showed that the number of drugs prescribed per patient declined by 0.8 and the number of drugs administered increased by 0.45 per patient.

CONCLUSIONS

The assertion that the most mentally impaired persons are the most heavily drugged was not supported in this institution. Findings indicated the need, however, for constant surveillance of the drug prescribing and administering processes. Two modifications of current prescribing practices are recommended: (1) a record of the precise conditions under which a drug prescribed "prn" is to be administered, and (2) a strong effort to reduce the total number of drug prescriptions. Changes in procedures are not the key to improving the prescribing situation. Instead, most extended care facilities need to implement complex organizational changes.

DRUG	Alcohol
SAMPLE SIZE	1 sample of 20; 1 sample not specified
SAMPLE TYPE	Institutionalized geriatric patients
AGE	Aged (mean for sample of 20: 76.6)
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Clinical observation
DATA COLLECTION INSTRUMENT	Observations
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	26

PURPOSE

Although aging is generally regarded as an inevitable set of biological processes with mainly negative implications, some people continue to flourish from a psychosocial standpoint into their nineties. This paper describes an attempt to promote social interaction among institutionalized elderly persons by serving wine. The mutual gratification model upon which the serving of wine was based is also explained.

SUMMARY

The typical elderly person, facing deteriorating health and limited income, tends to become progressively apathetic and socially isolated. Elderly persons may view themselves as burdens to others and their own lives as burdens to themselves. According to the "pathology model," elderly persons are viewed mainly as problems of medical management. Their environments are organized for the management of physical symptoms and diseases. Psychological states are of secondary importance, except in terms of clinical syndromes, such as "agitated depression," requiring the administration of psychotropic drugs. This pathology model is prevalent in geriatric practice.

An alternative model is the "mutual gratification model" offered by the developmental field theory. This theory focuses on individuals' psychological growth and the role of affect and motivation. According to the mutual gratification model, the aging person's transition from an independent adult to a geriatric patient results in the loss of one of the essential components of earlier years: interpersonal pleasure. Instead of seeking out people and being sought out by them in anticipation of pleasurable sharing, elderly persons become passive, impaired entities who are serviced as a matter of professional duty and personal dedication. Staff members and fellow patients expect neither to give pleasure to elderly patients nor to receive pleasure from them. An effort to encourage expectations for mutual gratification would overcome this problem.

The decision to center an action program around the serving of wine was based on the great variety of connotative meanings associated with wine, including social intimacy, adult pleasures, and sacred rituals. Wine was recognized also as a psychotropic drug similar to other such drugs. Moreover, serving wine was viewed as a way of recognizing elderly persons as responsible adults capable of enjoying life on an adult level and moving in a mature sphere of interaction. It was hypothesized that wine might not only encourage the growth of interpersonal relationships but would also operate more effectively on a psychophysiological level than conventional mood-influencing drugs.

In the first study, 20 elderly male patients on a minimal care ward were divided into 2 groups of 10 patients each. The groups met each weekday afternoon in separate day rooms, with a participant-observer assigned to each group. For the first 3 weeks, one group received 1.5 ounce servings of red port wine, with one refill available, and one group received grape juice. For the next 3 weeks, the beverages were reversed. In the 31st session, group members could choose either or both beverages. The group attendance was unprecedented in the history of the institution and continued well beyond the time limit set for participation in the study. Wine was clearly preferred when the choice was given. The tone of patient-patient communication improved markedly, although patients' general behavior did not change appreciably. The project was well accepted around the hospital. Continued interaction and mutual support among group members was observed in the 6-month followup.

The second study involved three patient groups: all-female, all-male, and coed, with the same schedule as in the previous study. The study took place on an intensive treatment ward, a contrast from the previous study's location in a relatively quiet ward. Analysis took place after 10 weeks. A core group of involved, interacting patients developed within each of the three groups. The all-male group underwent the most rapid rate of development and became the most cohesive and mutually gratifying group. The men tended to be hesitant about joining into the group situation but were drawn in by the wine, while the women showed more hesitation about accepting wine. In several cases, a dramatic improvement in general well-being occurred. Building on the favorable experiences of the wine groups, the institution's nursing service has incorporated the mutual gratification model into its own program. No adverse medical effects were observed in either study. About two-thirds of the ward populations were granted medical clearance for participation in the studies.

CONCLUSIONS

The positive reactions of both patients and staff to the wine program based on the mutual gratification model derived from developmental field theory make this model a potential alternative to the pathology model of aging.

DRUG	Alcohol
SAMPLE SIZE	144
SAMPLE TYPE	Alcoholics versus nonalcoholics
AGE	Mature adults; aged (mean: alcoholics: 57.9; nonalcoholics: 68)
SEX	Male
ETHNICITY	Not specified
GEOGRAPHICAL AREA	Not specified
METHODOLOGY	Comparative study
DATA COLLECTION INSTRUMENT	Cumulative Illness Rating Scale; Rapid Disability Rating Scale; medical records; interviews
DATE(S) CONDUCTED	1969-1971
NO. OF REFERENCES	8

PURPOSE

Much attention has focused on alcoholism and the problems of treating alcoholics in psychiatric or general hospitals. However, little has been written about the alcoholic in a nursing home, despite the fact that more alcoholics are apparently being placed in nursing homes than ever before. In addition, society's ambivalent attitudes toward alcoholism often result in inattention to alcoholism in alcoholic patients admitted to medical facilities for other problems.

This study focused on patients who had been hospitalized for medical treatment, who had either a primary or secondary diagnosis of chronic alcoholism, and who were sent to community nursing homes. The investigation focused on their characteristics and outcomes in comparison to other nursing home patients.

METHODOLOGY

Seventy-two male alcoholic patients who were transferred from a general medical Veterans Administration hospital into nursing homes were studied prior to placement and followed for 6 months in 35 homes. A total of 72 nonalcoholics placed during the same time were randomly selected as a comparison group. Data had been collected prospectively as part of a larger study on nursing home patients.

The patient's physician provided a prognosis and rated the patient's impairment on a 13-item Cumulative Illness Rating Scale. The ward nurse who knew the patient best completed a 17-item Rapid Disability Rating Scale to describe the patient's level of functioning. Social workers provided data regarding the patient's and the family's attitudes toward placement and the circumstances surrounding nursing home placement. Demographic and medical data were also collected from the medical records. Patients were followed up in the nursing home 1 week and 6 months after their placement to determine both level of functioning and such outcomes as continued stay in the nursing home, readmission to the hospital, death, or discharge from the nursing home.

RESULTS

The alcoholics had a mean age of 57.9; the nonalcoholics' mean age was 68. The alcoholics were less likely to be currently married and had less income. The two groups showed no significant differences in levels of disability or impairment.

The alcoholics had a significantly higher number of diagnoses than other nursing home patients ($p < 0.01$). However, except for cirrhosis and brain syndrome, they had fewer serious illnesses, such as cancer and diabetes. Outcomes after 6 months showed that 28 percent of the alcoholics had left the nursing home, 45 percent were still in the home, 10 percent were hospitalized, and 16 percent had died. These outcomes were not significantly different from those of other nursing home patients.

Three case histories illustrate the two types of alcoholics going to a nursing home: (1) those whose physical problems predominate over environment and (2) those whose environmental problems overshadow their physical problems. An example of the first type is that of a 64-year-old male admitted to the hospital with upper gastrointestinal bleeding and subsequently found to have metastatic carcinoma. He died 21 days after placement in a nursing home. In contrast, a 52-year-old man and a 57-year-old man who were placed in nursing homes had difficulty caring for themselves or getting along with others. Both left the nursing home, one only 4 days after placement.

CONCLUSIONS

Alcoholics are as much in need of nursing home services as are other nursing home patients, even though they differ along social and specific illness patterns. Unless the nursing home has access to social services and unless its staff is trained regarding the special problems of alcoholic patients, younger nursing home patients whose problems are primarily social and environmental combined with alcoholism will probably not be substantially rehabilitated.

Zimberg, S. The psychiatrist and medical home care: Geriatric psychiatry in the Harlem community. American Journal of Psychiatry, 127(8):102-106, 1971.

DRUG	Phenothiazine; antidepressants
SAMPLE SIZE	36
SAMPLE TYPE	Home care patients
AGE	Aged
SEX	Both
ETHNICITY	Not specified
GEOGRAPHICAL AREA	New York City
METHODOLOGY	Clinical observation; case study
DATA COLLECTION INSTRUMENT	Observations
DATE(S) CONDUCTED	Not specified
NO. OF REFERENCES	11

PURPOSE

The value of psychiatric consultation to the nonpsychiatric staff of general hospitals has been well documented, but the role of the psychiatrist has changed with the growth of community-based medical care centers and medical treatment of chronically ill patients at home. The present study examines the ways in which a psychiatric consultant can aid the staff of a medical home care unit in understanding factors affecting their homebound, chronically ill patients. The use of medications in controlling psychiatric symptoms is illustrated through three case studies.

METHODOLOGY

The study sample consists of 24 elderly patients (15 men, 9 women) who were evaluated by the author at home and 12 cases in which the author served as a psychiatric consultant. The consultations were undertaken as a service of Harlem Hospital Center's Adult Out-Patient Psychiatry Clinic in New York City. The clinic provided for home psychiatric consultations to difficult elderly patients. The psychiatrist assisted the multidisciplinary home care staff, which consisted of a medical director, social workers, physicians, and nurses. Cases were presented at a weekly staff conference, during which participants decided whether the situation could best be handled through home or case consultations. Visits were usually made when a crisis situation had developed.

RESULTS

The most common areas for staff education included recognition of mental disorders, use of psychiatric drugs, psychological aspects of acute and chronic physical disorders, reaction of family to an ill relative, socioenvironmental influences on behavior, understanding and management of difficult patients, and the psychological aspects of the doctor-patient relationship.

Reasons for referral of most of the 24 patients visited at home were management problems (e.g., refusal to take medications, difficult relations with a family member, wandering away from home in a confused state, or alcoholism). Most of the patients were diagnosed as having chronic brain syndrome related to arteriosclerotic vascular changes; there were considerably more women than men in this diagnostic group.

Three case reports illustrate these patients' problems. The first was a 50-year-old widow who was receiving care for hemiplegia, hypertension, and a fractured right arm. She had been referred because of excessive alcohol intake and proved to be depressed. The patient appeared to have recently been experiencing auditory hallucinations. Suggested treatment included phenothiazine and antidepressant medication, rehousing in a more suitable environment, exercise and ambulation, and homemaking services. After all measures except rehousing had been undertaken, the patient improved.

The second case involved a 78-year-old former taxi driver living with his wife and suffering from hypertensive cardiovascular disease and the aftereffects of a cerebrovascular accident in 1961; he was referred because of wandering and confusion. During the interview, he exhibited impaired memory and orientation, as well as poor vision. The consultant prescribed a small dose of phenothiazine at bedtime, which eliminated episodes of confusion and wandering.

The final case was that of a 79-year-old widow receiving home care for arteriosclerotic heart disease and a recent small-bowel resection. The referral resulted from the patient's suspiciousness, agitated behavior, and fear of being robbed. At the interview, the patient displayed anxiety, depression, feelings of isolation, and evidence of chronic brain syndrome. Phenothiazine medication, homemaking services, and installation of a telephone were recommended by the consulting psychiatrist. Although the medication was never started, the patient responded well to the environmental manipulations and improved her social contacts.

CONCLUSIONS

A psychiatrist can provide meaningful help to the staff of a home care program to chronically ill, elderly patients by increasing their knowledge of the psychological effects of chronic disease and by evaluating patients in their homes. Most patients diagnosed at home receive recommendations of supportive measures and psychiatric medication. Medication is often useful in relieving depression, psychotic symptoms, and confusional states. Such measures enable staff to relate better to the patients, to avoid punitive attitudes, and to maintain patients in their homes.

Bibliography

- Adelman, R.; Cristofalo, V.; and Roberts, J.; eds. Pharmacological Intervention of the Aging Process. New York: Plenum Press, 1978.
- Aisenberg, R., and Kastenbaum, R. Value problems in geriatric psychopharmacology. The Gerontologist, 4:75-77, 1964.
- Alcohol Health and Research World. Older problem drinkers--their special needs, and a nursing home geared to those needs. Alcohol Health and Research World, Spring 1975. Pp. 12-17.
- Altman, H.; Mehta, D.; Evenson, R.; and Sletten, I.W. Behavioral effects of drug therapy on psycho-geriatric inpatients. I. Chlorpromazine and thioridazine. Journal of the American Geriatrics Society, 21:241-248, 1973.
- Altman, H.; Mehta, D.; Evenson, R.; and Sletten, I.W. Behavioral effects of drug therapy on psycho-geriatric inpatients. II. Multi-vitamin supplement. Journal of the American Geriatrics Society, 21:249-252, 1973.
- American Health Care Association, American Pharmaceutical Association, and American Society of Hospital Pharmacists. Pharmaceutical Services in the Long-Term Care Facility. Washington, D.C.: American Health Care Association, 1975.
- American Medical Association, Council on Scientific Affairs. Drug abuse related to prescribing practices. Journal of the American Medical Association, 247(6):864, 1982.
- Amin, M.M. Drug treatment of insomnia in old age. Psychopharmacology Bulletin, 12:52-54, 1976.
- Andersen, R., and Newman, J. Societal and individual determinants in the United States. Milbank Memorial Fund Quarterly, 51:95-124, 1973.
- Anderson, W.F. Administration, labelling and general principles of drug prescription in the elderly. Gerontologia clinica, 16:4-9, 1974.
- Apfeldorf, M. The quantitative objective assessment of personality traits of alcoholics over the life span. Addictive Diseases: an International Journal, 3:449-456, 1978.
- *Apfeldorf, M., and Hunley, P.J. Application of MMPI alcoholism scales to older alcoholics and problem drinkers. Journal of Studies on Alcohol, 36(5):645-653, 1975.
- Apfeldorf, M.; Hunley, P.; and Cooper, G.D. Disciplinary problems in a home for older veterans: Some psychological aspects in relation to drinking behavior. The Gerontologist, 12: 143-147, 1972.
- Archambault, G.F. The law concerning dangerous drugs in nursing homes. Hospital Management, 101:68-81, 1966.
- Armor, D.; Johnston, D.; Polich, S.; and Stambul, H. Trends in U.S. Adult Drinking Practices. Santa Monica, Calif.: Rand Corp., 1977.
- Arthur, M.B. Formulation of drugs of the elderly. Gerontologia clinica, 16:25-29, 1974.
- Asnes, D.P. Psychopharmacology in the aged: Use of major psychotropic medications in treatment of the elderly: Case examples. Journal of Geriatric Psychiatry, 7:189-202, 1974.

*Indicates works abstracted in this volume.

- Atkinson, L.; Gibson, I.; and Andrews, J. An investigation into the ability of elderly patients continuing to take prescribed drugs after discharge from the hospital and recommendations concerning improving the situation. Gerontology, 24:225-234, 1978.
- Atkinson, L.; Gibson, I.; and Andrews, J. The difficulties of old people taking drugs. Age and Ageing, 6:144-150, 1977.
- Ayd, F.J. Oxazepam: An overview. Diseases of the Nervous System, 36:14, 1975.
- Ayd, F.J., Jr. Nialamide therapy for the depressed geriatric patient. Journal of the American Geriatrics Society, 10:432-435, 1962.
- Ayd, F.J., Jr. Tranquilizers and the ambulatory geriatric patient. Journal of the American Geriatrics Society, 8:909-914, 1960.
- Bachinsky, M. Geriatric medications: How psychotropic drugs can go astray. RN, 41(2):50-55, 1978.
- Bachinsky, M., et al. Practical Guide to Geriatric Medication. Oradell, N.J.: Medical Economics Books, 1980.
- *Back, K.W., and Sullivan, D.A. Self-image, medicine, and drug use. Addictive Diseases: an International Journal, 3(3):373-382, 1978.
- Baer, P.B.; Merin, K.; and Gaitz, C.M. Familial resources of elderly psychiatric patients: Attitudes, capability and service components. Archives of General Psychiatry, 22(4):343-350, 1970.
- Bahr, H., and Garrett, G.R. Women Alone: The Disaffiliation of Urban Females. Lexington, Mass.: Lexington Books, 1976.
- Bahr, H.M. Lifetime affiliation patterns of early and late-onset heavy drinkers on skid row. Quarterly Journal of Studies on Alcohol, 30:645-656, 1969.
- Bahr, H.M., and Caplow, T. Old Men Drunk and Sober. Washington Square, N.Y.: New York University Press, 1973.
- *Bailey, M.B.; Haberman, P.W.; and Alksne, H. The epidemiology of alcoholism in an urban residential area. Quarterly Journal of Studies on Alcohol, 26:19-40, 1965.
- Bainton, B. Drinking patterns of the rural elderly: A case study of issue oriented research. In: Fry, C.L., ed. Dimensions of an Anthropology of Aging. New York: Praeger Publishers, 1980.
- Baker, H.M. Drug therapy in geriatrics. Journal of Indiana State Medical Association, 67:171-174, 1974.
- Ball, J.C., and Chambers, C.D., eds. The Epidemiology of Opiate Addiction in the United States. Springfield, Ill.: Thomas, 1970.
- *Ball, J.C., and Lau, M.P. The Chinese narcotic addict in the United States. Social Forces, 45(1):68-72, 1966.
- Ban, T.A. Geriatric psychopharmacology: Clinical evaluation of brain function in the aged. Psychopharmacological Bulletin, 14:20-23, 1978.
- Ban, T.A.; Lehmann, H.E.; Amin, M.; Bronheim, L.A.; Klinger, A.; Nair, M.P.V.; Galvan, L.; Bergara, L.; and Zoch, C. Differential effects of trazodone in depressed schizophrenic and geriatric patients. International Journal of Clinical Pharmacology, 9:23-27, 1974.
- *Barnes, G.M. Alcohol use among older persons: Findings from a western New York State general population survey. Journal of the American Geriatrics Society, 27(6):244-250, 1979.

- Barnes, G.M.; Abel, E.L.; and Ernst, C.A.S.; eds. Alcohol and the Elderly: A Comprehensive Bibliography. Westport, Conn.: Greenwood Press, 1980.
- *Barsky, A.J.; Stewart, R.; Burns, B.J.; Sweet, R.; Regier, D.; and Jacobson, A.M. Neighborhood health center patients who use minor tranquilizers. The International Journal of the Addictions, 14(3):337-354, 1979.
- *Barton, R., and Hurst, L. Unnecessary use of tranquilizers in elderly patients. British Journal of Psychiatry, 112:989-990, 1966.
- Basen, M.M. The elderly and drugs--problem overview and program strategy. Public Health Reports, 92:43-48, 1977.
- Batchelor, I.R.C. Management and prognosis of suicidal attempts in old age. Geriatrics, 10:291, 1955.
- Bateman, N.I., and Petersen, D.M. Factors related to outcome of treatment for hospitalized white male and female alcoholics. Journal of Drug Issues, 2:66-74, 1972.
- Bateman, N.I., and Petersen, D.M. Variables related to outcome of treatment for hospitalized alcoholics. The International Journal of the Addictions, 6:215-224, 1971.
- Bauer, G.E. Treatment of hypertension in the elderly. Drugs, 7:310-318, 1974.
- Bean, P. The drug taker 1920-1970. In: Bean, P., ed. The Social Control of Drugs. New York: Wiley, 1974. Pp. 95-129.
- *Bean, P. Accidental and intentional self-poisoning in the over-60 age group. Gerontologia clinica, 15:259-267, 1973.
- Beardon, W.O.; Mason, J.B.; and Smith, E.M. Perceived risk and elderly perception of generic drug prescribing. The Gerontologist, 19:191-195, 1979.
- Beattie, B.L., and Sellers, E.M. Psychoactive drug use in the elderly: The pharmacokinetics. Psychosomatics, 20(7):474-479, 1979.
- Becker, P.W., and Cesar, J.A. User of beer in geriatric psychiatric patient groups. Psychological Reports, 33:182, 1973.
- *Becker, P.W., and Conn, S.H. Beer and social therapy treatment with geriatric psychiatric patient groups. Addictive Diseases: an International Journal, 3(3):429-436, 1978.
- *Bender, A.D. Pharmacodynamic principles of drug therapy in the aged. Journal of the American Geriatrics Society, 22(7):296-303, 1974.
- Bender, A.D. Geriatric pharmacology: Age and its influence on drug action in adults. Drug Information Bulletin, 3:153-158, 1969.
- Bender, A.D. Effect of age on intestinal absorption: Indications for drug absorption in the elderly. Journal of the American Geriatrics Society, 16:1331-1339, 1968.
- Bender, A.D. Pharmacodynamic consequences of aging and their applications in the treatment of the elderly patient. Medical Annals of the District of Columbia, 36:267, 1967.
- Bender, A.D. A pharmacodynamic basis for changes in drug activity associated with aging in the adult. Experimental Gerontology, 1:237-247, 1965.
- Bender, K.J., and Gramo, R.R. Monitoring the geriatric patient--interpreting laboratory data. American Pharmaceutical Association Journal, 15:21-23, 1975.
- Bennett, B.V. Drug distribution in nursing homes. Nursing Homes, 20:18-21, 1971.
- Bennett, R., and Segerberg, O., Jr. Consequences of social isolation. Archives of the Foundation of Thanatology, 7(2):137, 1978.

- *Benson, R.A., and Brodie, D.C. Suicide by overdoses of medicines among the aged. Journal of the American Geriatrics Society, 23(7):304-308, 1975.
- Berger, F.M. Drugs and suicide in the United States. Clinical Pharmacology and Therapeutics, 8:219, 1967.
- Bergmann, K. Assessment of therapy in psychogeriatric illness. Gerontologia clinica, 16:54-63, 1974.
- Berman, P.M., and Kirsner, J.B. Recognizing and avoiding adverse gastrointestinal effects of drugs. Geriatrics, 29:59-62, 1974.
- Bernstein, A., and Lennard, H.L. Drugs, doctors and junkies. Society, 10:14-25, 1973.
- Bertakis, K.D. The communication of information from physician to the elderly patient: A method for increasing patient retention and satisfaction. In: Medication Management and Education of the Elderly. Nutley, N.J.: Roche Laboratories, 1978. Pp. 20-21.
- Berton, A.D., ed. Drug information for patients: The package insert. Drug Information Journal, Vol. 11, 1977.
- Birkett, D.P., and Boltuch, B. Chlorpromazine in geriatric psychiatry. Journal of the American Geriatrics Society, 20:403-406, 1972.
- Black, A.L. Altering behavior of geriatric patients with beer. Northwest Medicine, 68:453-456, 1969.
- Blose, I.L. The relationship of alcohol to aging and the elderly. Alcoholism: Clinical and Experimental Research, 2:17-21, 1978.
- Blum, R.H.; Braunstein, L.; and Stone, A. Normal drug use: An exploratory study of patterns and correlates. In: Cole, J.O., and Wittenborn, J.R., eds. Drug Abuse: Social and Psychopharmacological Aspects. Springfield, Ill.: Thomas, 1969.
- *Blusewicz, M.J.; Dustman, R.E.; Schenkenberg, T.; and Beck, E.C. Neuropsychological correlates of chronic alcoholism and aging. The Journal of Nervous and Mental Disease, 165(5): 348-355, 1977.
- Boisseree, V.R. A governmental contribution to rising drug expenditures in skilled nursing facilities. The Journal of Long-Term Care Administration, 8:21-34, 1980.
- Boscarino, J. Alcoholism in VA inpatient facilities: Some implications of the VA patient census. American Journal of Drug and Alcohol Abuse, 7(2):237-250, 1980.
- Bourne, P.G. Foreword. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979.
- Bourne, P.G. Drug abuse in the aging. Perspective on Aging, 2:18-20, 1973.
- Bowles, G., Jr. Medication procedures must conform to drug abuse laws. Modern Nursing Homes, 26:8, 1971.
- Boyd, J.R.; Covington, T.R.; Stanaszek, W.F.; and Coussons, T.R. Drug defaulting. Part II: Analysis of non-compliance patterns. American Journal of Hospital Pharmacy, 31:485-491, 1974.
- Bozetti, L.P., and MacMurray, J.P. Drug misuse among the elderly: A hidden menace. Psychiatric Annals, 1(3):99-103, 1977.
- Brady, E.S. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: University of Southern California Press, 1978. Pp. 1-7.
- Brady, E.S. Drugs and the elderly. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 1-6.

- Branconnier, R.J., and Cole, J. The impairment index as a symptom-independent parameter of drug efficacy in geriatric psychopharmacology. Journal of Gerontology, 33:217-223, 1978.
- *Brand, F.N., and Smith, R.T. Medical care and compliance among the elderly after hospitalization. International Journal of Aging and Human Development, 5(4):331-346, 1974.
- *Brand, F.N.; Smith, R.T.; and Brand, P.A. Effect of economic barriers to medical care on patients' noncompliance. Public Health Reports, 92(1):72-78, 1977.
- Bressler, R., and Conrad, K.A., eds. Drug Therapy for the Elderly. St. Louis: C.V. Mosby, 1981.
- *Bressler, R., and Palmer, J. Drug interactions in the aged. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 49-60.
- Briant, R.H. Drug treatment in the elderly: Problems and prescribing rules. Drugs, 13:225-229, 1977.
- Bridges-Webb, C. Psychotropic drug use in the elderly: Public ignorance or indifference? Comment 3. Medical Journal of Australia, 2(2):67-68, 1976.
- Briganti, F.J. Side effects of drugs used by the elderly. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 25-32.
- Brimigion, J. The role of the nurse in long-term drug management. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 69-71.
- Brin, M., and Bauernfeind, J.C. Vitamin needs of the elderly. Postgraduate Medicine, 63:155-163, 1978.
- Brody, E.M. Quoted in: National Institute on Drug Abuse. Drug Use and the Elderly: Perspectives and Issues. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1975.
- Brody, J.A. Aging and alcohol abuse. Journal of the American Geriatrics Society, 30(2):123-126, 1982.
- Brooks, G.M., and MacDonald, M.G. Effects of trifluoperazine in aged depressed female patients. American Journal of Psychiatry, 117:932-933, 1961.
- Brotman, H.B. "Every Tenth American." Statement prepared for the U.S. Senate Special Committee on Aging, May 1, 1976.
- Brown, M.M.; Boosinger, J.K.; Henderson, M.; Rife, S.S.; Rustia, J.K.; Taylor, O.; and Young, W.W. Drug-drug interactions among residents in homes for the elderly: A pilot study. Nursing Research, 26:47-52, 1977.
- Brown, M.M.; Cornwell, J.; Weist, J.K. Reducing the risks to the institutionalized elderly: Part I. Depersonalization, negative relocation effects, and medical care deficiencies. Part II. Fire, food poisoning, decubitus ulcer and drug abuse. Journal of Gerontological Nursing, 7(7):401-407, 1981.
- Buchanan, D.S. Iatrogenic causes of neurologic disorders: Part II. Drug-related dysfunction. Geriatrics, 33:47-52, 1978.
- *Burch, J.G. A brief review of drug-related neurologic disorders in the elderly. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 29-33.
- Burglass, M.E. Geriatric drug abuse: A report of 23 cities. In: Proceedings of the Third National Drug Abuse Conference. New York: Marcel Dekker, 1978. Pp. 100-103.

- Burrill, R.H.; McCourt, J.F.; and Cutter, H.S.G. Beer: A social facilitator for PMI patients? The Gerontologist, 14:430-431, 1974.
- Burston, G.R. Self-poisoning in elderly patients. Gerontologia clinica, 11:279-289, 1969.
- Bush, P.J., and Rabin, D.L. Who's using nonprescribed medicines? Medical Care, 14:1014-1023, 1976.
- Busse, E.W. Hope for rejuvenation. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 113-115.
- Butler, R.N. Pharmacological interventions of the aging process. Advances in Experimental Medicine and Biology, 97:231-241, 1978.
- Butler, R.N. In the public interest: what everyone should know about drugs--long overdue. International Journal of Aging and Human Development, 8:93-95, 1977-78.
- Butler, R.N. Public interest report No. 19--the overuse of tranquilizers in older patients. International Journal of Aging and Human Development, 7:185-187, 1976.
- Butler, R.N. Why Survive? New York: Harper & Row, 1975.
- Butler, R.N., and Lewis, M.I. Aging and Mental Health. 3rd ed. St. Louis, Mo.: C.V. Mosby, 1982.
- Butler, R.N., and Lewis, M. Aging and Mental Health. St. Louis, Mo.: C.V. Mosby, 1977.
- *Cadwallader, D.E. Drug interactions in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 80-93.
- Cahalan, D.; Cisin, I.; and Crossley, H. American Drinking Practices. Monograph No. 6. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1969.
- Cahalan, D., and Room, R. Problem Drinking Among American Men. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1974.
- Caird, F.I. Prescribing for the elderly. British Journal of Hospital Medicine, 17:610-613, 1977.
- California Pharmaceutical Association. Implementing Strategies for Intervention in Drug Misuse Situations. Sacramento, Calif.: the Association, 1976.
- Cameron, D.D. The elderly alcoholic. In: The Clinical Problems of Advancing Years: Second Symposium. Philadelphia: Smith, Kline and French, 1951. Pp. 11-13.
- *Capel, W.C.; Goldsmith, B.M.; Waddell, K.J.; and Stewart, G.T. The aging narcotic addict: An increasing problem for the next decades. Journal of Gerontology, 27(1):102-106, 1972.
- *Capel, W.C., and Peppers, L.G. The aging addict: A longitudinal study of known abusers. Addictive Diseases: an International Journal, 3(3):389-403, 1978.
- *Capel, W.C., and Stewart, G.T. The management of drug abuse in aging populations: New Orleans findings. Journal of Drug Issues, 1(2):114-121, 1971.
- Carlson, G.L., and Adams, S.R. "Medication Misuse in the Elderly: Assessment Based Education." Paper presented at the Annual Meeting of the Gerontological Society, Washington, D.C., Nov. 25-29, 1979.
- Carroll, P.J. The social hour for geropsychiatric patients. Journal of the American Geriatrics Society, 26(1):32-35, 1978.
- Carruth, B. "Alcoholism and Problem Drinking Among Older Persons: Life Styles, Drinking Practices and Drinking Problems of Older Americans." Paper presented at the National Council on Alcoholism Medical/Scientific Meeting, Denver, Colorado, 1974.

- Carruth, B. Toward a definition of problem drinking among older persons: Conceptual and methodological considerations. In: Williams, E.P., ed. Alcohol and Problem Drinking Among Older Persons. Springfield, Va.: National Technical Information Service, 1973.
- Carruth, B.; Williams, E.P.; Mysak, P., and Boudreaux, L. Alcoholism and Problem Drinking Among Older Persons: Community Care Providers and the Older Problem Drinker. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1973.
- *Castleden, C.M.; Houston, A.; and George, C.F. Are hypnotics helpful or harmful to elderly patients? Journal of Drug Issues, 9(1):55-62, 1979.
- Castleden, C.M.; Volans, C.N.; and Raymand, K. The effect of aging on drug absorption from the gut. Age and Ageing, 6:138-143, 1977.
- Central Comprehensive Mental Health Center, Inc. AD-PEP: Alcohol-Drug Prevention and Education Program for Senior Citizens. Centralia, Ill.: Mental Health Center, 1980.
- Cermak, L.S., and Peck, E. Continuum versus premature aging theories of chronic alcoholism. Alcoholism, 6(1):89-95, 1982.
- Chambers, C.D., and Griffey, M.S. Use of legal substances within the general population: The sex and age variables. Addictive Diseases: an International Journal, 2:7-19, 1975.
- Chambers, C.D., and Inciardi, J.A. An Assessment of Drug Use in the General Population. New York: New York State Narcotic Addiction Control Commission, 1971.
- Chambers, C.D., and White, O.Z. Characteristics of high-frequency consumers of prescription psychoactive drugs. Chemical Dependence, 4(1-2):33-46, 1980.
- Chaney, E.F.; O'Leary, M.R.; Fehrenbach, P.A.; and Donovan, D. Cognitive deficit in middle-aged alcoholics. Drug and Alcohol Dependence, 6:219-226, 1980.
- Chapman, S.F. Psychotropic drug use in the elderly: Public ignorance or indifference? Medical Journal of Australia, 2:62-64, 1976.
- Cheah, K.C., and Beard, O.W. Psychiatric findings in a geriatric evaluation unit population and implications. Gerontological Society, 18(5, pt. 2):59, 1978.
- Chen, K.K. Principles of pharmacology as applied to the aged. In: Stieglitz, E.J., ed. Geriatric Medicine. Philadelphia: W.B. Saunders Co., 1943.
- *Cheung, A. Drugs for the aging: Use and abuse. In: Reinhardt, A.M., and Quinn, M.D., eds. Current Practice in Gerontological Nursing. Vol. 1. St. Louis, Mo.: C.V. Mosby, 1979. Pp. 64-73.
- Cheung, A., and Kaynor, R. An application of clinical pharmacy services in extended care facilities. California Pharmacist, 23:22-28, 1975.
- Chien, C.P. Psychiatric treatment for geriatric patients: "Pub" or drug? American Journal of Psychiatry, 127:1070-1075, 1971.
- Chien, C.P. Beer more effective than drugs as psychologic prop to elderly. Geriatric Focus, 9:5-6, 1970.
- Chien, C.P.; Stotsky, B.A.; and Cole, J.O. Psychiatric treatment for nursing home patients: Drug, alcohol, milieu. American Journal of Psychiatry, 130:543-548, 1973.
- *Chien, C.P.; Townsend, E.J.; and Ross-Townsend, A. Substance use and abuse among the community elderly: The medical aspect. Addictive Diseases: an International Journal, 3(3): 357-372, 1978.
- *Christopher, L.J.; Ballinger, B.R.; Shephard, A.M.M.; Ramsey, A.; and Crooks, G. Drug prescribing patterns in the elderly: A cross-sectional study of in-patients. Age and Ageing, 7:74-82, 1978.

- Ciampi, L., and Eisert, M. /Retrospective long term studies on the health status of alcoholics in old age./ (Fre) Social Psychiatry (Berlin), 6(3):129-151, 1971.
- Clark, A.N.G., and Mankikar, G.D. d-Amphetamine in the elderly patients refractory to rehabilitation procedures. Journal of the American Geriatrics Society, 27:174-177, 1979.
- Cohen, S. Drug abuse in the aging patient. Lex et Scientia, 11:217-221, 1975. Abstracted in Journal of Studies on Alcoholism, 37(10):1455, 1976.
- Cohen, S., and Ditman, K.S. Gerovital H-3 in the treatment of the depressed aging patient. Psychosomatics, 15-16:15-19, 1974.
- Cole, J.O., and Stotsky, B.A. Improving psychiatric drug therapy: A matter of dosage and choice. Geriatrics, 29:74-78, 1974.
- Coleman, J.H., and Dorevitch, A.P. Rational use of psychoactive drugs in the geriatric patient. Drug Intelligence and Clinical Pharmacy, 15(12):940-944, 1981.
- Community Advisory Committee on Aging and Addiction. Aging and Addiction in Arizona April 1977. Phoenix, Ariz.: the Committee, 1979.
- Compton, B. The role of the family nurse practitioner in the drug management of the elderly patient in a rural community. In: Fann, W.E., and Maddox, G.L.; eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 77-81.
- Cooper, J.W. Drug therapy in the elderly: Is it all it could be? American Pharmaceutical Association Journal, 18:25-26, 1978.
- Cooper, J.W., Jr., and Bagwell, C.G. Contribution of the consultant pharmacist to rational drug usage in the long-term care facility. Journal of the American Geriatrics Society, 26: 513-520, 1978.
- Covert, A.B.; Rodrigues, T.; and Solomon, K. The use of mechanical and chemical restraints in nursing homes. Journal of the American Geriatrics Society, 25:85-89, 1977.
- Cox, J.R., and Forthouse, A. Effect of amiloride and hydrochlorothiazide on body fluids and electrolytes in geriatric patients with congestive cardiac failure. Gerontologia clinica, 16: 157-162, 1974.
- Crawley, H.K., III; Eckel, F.M.; and McLeod, D.C. Comparison of a traditional and unit dose drug distribution system in a nursing home. Drug Intelligence and Clinical Pharmacy, 5:166-171, 1971.
- *Creedon, M.A. Social and organizational influences on the use of psychotropic drugs in nursing homes. In: Faulknerberry, R., ed. Drug Problems of the 70's; Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980. Pp. 167-170.
- Crook, T., ed. Physicians' Handbook on Psychotherapeutic Drug Use in the Aged. Conn.: Mark Powley Assoc., 1981.
- Crooks, J.; O'Malley, K.; and Stevenson, I.H. Pharmacokinetics in the elderly. Clinical Pharmacokinetics, 1:280-296, 1976.
- Crooks, J., and Stevenson, I.H.; eds. Drugs and the Elderly: Perspectives in Geriatric Clinical Pharmacology. Baltimore: University Park Press, 1979.
- Curtis, E.B. Medication errors made by patients. Nursing Outlook, 9:290-291, 1961.
- *Daniel, R. Psychiatric drug use and abuse in the aged. Geriatrics, 25:144-158, 1970.
- Davidson, J.R. Trial of self-medication in the elderly. Nursing Times, 70:391-392, 1974.
- Davidson, J.R. Presentation and packaging of drugs for the elderly. Journal of Hospital Pharmacology, 31:180-184, 1973.

- Davis, J.M. Psychopharmacology in the aged: Use of psychotropic drugs in geriatric patients. Journal of Geriatric Psychiatry, 7:145-159, 1974.
- Davis, M.S. Physiologic, psychological, and demographic factors in patient compliance with doctor's orders. Medical Care, 6:115-122, 1968.
- Davis, M.S. Variations in patients' compliance with doctors' advice: An empirical analysis of patterns of communication. American Journal of Public Health, 58:274-288, 1968.
- Davis, M.S. Variations in patients' compliance with doctors' orders: Analysis of congruence between survey responses and results of empirical investigations. Journal of Medical Education, 41:1037-1048, 1966.
- Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973.
- Davison, W. Neurological and mental disturbances due to drugs. Age and Ageing, Suppl:119-130, 1978.
- Davison, W. Pitfalls to avoid in prescribing drugs for the elderly. Geriatrics, 30:157-158, 1975.
- Davison, W. Factors complicating the effectiveness of drugs. Gerontologia clinica, 16:64-67, 1974.
- Davison, W. The hazards of drug treatment in old age. In: Brocklehurst, J.C., ed. Textbook of Geriatric Medicine and Gerontology. London: Churchill Livingstone, 1973. Pp. 631-634.
- Davison, W. Drug hazards in the elderly. Gerontologia Clinica, 7:257-264, 1965.
- Dearden, M.H. Drugs and the elderly. Journal of Long-Term Care Administration, 6:1-9, 1978.
- DeGroot, M.H.L. The clinical use of psychotherapeutic drugs in the elderly. Drugs, 8:132-138, 1974.
- deLint, J. The prevention of alcoholism. Preventive Medicine, 3:24-35, 1974.
- Dimant, J., and Merrit, W. Serum digoxin levels in elderly nursing home patients: Appraisal of routine periodic measurements. Journal of the American Geriatrics Society, 26:378-379, 1978.
- DiNitto, D.; Lauer, B.; and Storm, L. "Improving With Age: Developing a Model for Alcoholism Education and Prevention Among the Elderly." Paper presented at NCA Annual Forum, New Orleans, La., April 1981.
- Dobbie, J. Substance Abuse Among the Elderly. Toronto, Ontario: Addiction Research Foundation, 1978.
- Doyle, J.P., and Hamm, B.M. Medication Use and Misuse Study Among Older Persons. Jacksonville, Fla.: The Cathedral Foundation of Jacksonville, 1976.
- Drew, L.R.H. Alcoholism as a self-limiting disease. Quarterly Journal of Studies on Alcohol, 29:956-967, 1968.
- Drew, L.R.H. Alcoholic offenders in a Victorian prison. The Medical Journal of Australia, 2:575-578, 1961.
- Droller, H. Some aspects of alcoholism in the elderly. Lancet, 2:137-139, 1964.
- Duckworth, G.L., and Rosenblatt, A. Helping the elderly alcoholic. Social Casework, 57:296-301, 1976.
- *Dunham, R.G. Aging and changing patterns of alcohol use. Journal of Psychoactive Drugs, 13(2):143-151, 1981.

- Dunlop, J. "Alcohol Problems Among the Elderly: Implications for the Nurse." Report to Health and Welfare Planning Council, Senior Alcohol Services, Vancouver, Washington, 1980.
- Dunnell, K., and Cartwright, A. Medicine Takers, Prescribers and Hoarders. London: Routledge & Kegan Paul, 1972.
- DuPont, R.L. Polydrug abuse and the maturing national drug abuse data base. Annals of the New York Academy of Sciences, 282:311-320, 1976.
- DuPont, R.L. Testimony before the Subcommittee on Aging and Subcommittee on Alcoholism and Narcotics of the U.S. Senate Committee on Labor and Public Welfare, Washington, D.C., June 7, 1976.
- Eagleton, T.F. Opening statement before the Subcommittee on Aging and the Subcommittee on Alcoholism and Narcotics of the U.S. Senate Committee on Labor and Public Welfare, Washington, D.C., June 7, 1976.
- Eastwood, H.D.H. Steroid therapy in the elderly. Gerontologia clinica, 16:163-170, 1974.
- *Eckardt, M.J. Consequences of alcohol and other drug use in the aged. In: Behnke, J.A.; Finch, C.E.; and Moment, G.B.; eds. The Biology of Aging. New York: Plenum Press, 1978. Pp. 191-204.
- Eckel, F.M. To prevent stricter regulation improve drug handling methods. Modern Nursing Homes, 27:4-6, 1971.
- Edwards, A.E. Prophylactic psychopharmacology and age-correlated intellectual changes. The Gerontologist, 7:20-22, 1967.
- Eisdorfer, C. Observations on the psychopharmacology of the aged. Journal of the American Geriatrics Society, 23:53-57, 1975.
- *Eisdorfer, C., and Basen, M.M. Drug misuse by the elderly. In: DuPont, R.L.; Goldstein, A.; and O'Donnell, J.; eds. Handbook on Drug Abuse, National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979. Pp. 271-276.
- Eisdorfer, C., and Fann, W.E., eds. Psychopharmacology and Aging. New York: Plenum Publishing, 1973.
- Epstein, L.J. Anxiolytics, antidepressants, and neuroleptics in the treatment of geriatric patients. In: Lipton, M.A.; DiMascio, A.; and Killam, K.F.; eds. Psychopharmacology: A Generation of Progress. New York: Raven Press, 1978.
- Epstein, L.J. Antisocial behavior of the elderly. California Mental Health Research Digest, 8(2): 78-79, 1970.
- Epstein, L.J., and Alexander, S. Organic brain syndrome in the elderly. Geriatrics, 22(2):145-150, 1967.
- *Epstein, L.J.; Mills, C.; and Simon, A. Antisocial behavior of the elderly. Comprehensive Psychiatry, 11(1):36-42, 1970.
- Ermini, M. Is there a biological basis for geriatric pharmacotherapy? Gerontology, 24:1-5, 1978.
- Estes, E.H. Health experience in the elderly. In: Russe, E.W., and Pfeiffer, E., eds. Behavior and Adaptation in Late Life. 2d ed. Boston: Little, Brown, 1977.
- Etemad, B. Alcoholism and aging. Current Psychiatric Therapies, 19:111-114, 1980.
- *Eve, S.B., and Friedsam, H.J. Use of tranquilizers and sleeping pills among older Texans. Journal of Psychoactive Drugs, 13(2):165-173, 1981.
- Exton-Smith, A.N. Tranquilizers and sedatives in the elderly. Practitioner, 188:732-738, 1962.

- *Fann, W.E. Pharmacotherapy in older depressed patients. Journal of Gerontology, 31(3):304-310, 1976.
- Fann, W.E. Interactions of psychotropic drugs in the elderly. Postgraduate Medicine, 53:182-186, 1973.
- Fann, W.E., and Lake, C.R. Drug-induced movement disorders in the elderly: An appraisal of treatment. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 41-48.
- Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974.
- Fann, W.E.; Wheless, J.C.; and Richman, B.W. Treating the aged with psychotropic drugs. The Gerontologist, 16:322-328, 1976.
- Fann, W.E.; Wheless, J.C.; and Richman, B.W. Psychopharmacological treatment of disorders of senescence. North Carolina Medical Journal, 35:672-677, 1974.
- Faris, D. The prevention of alcoholism and economic alcoholism. Preventive Medicine, 3:36-48, 1974.
- Fish, J.M. Placebo Therapy. San Francisco: Jossey-Bass, 1973.
- Forbes, J.A. Prescribing for the elderly in general practice and the problems of record keeping. Gerontologia clinica, 16:14-17, 1974.
- *Forni, P.J. Alcohol and the elderly. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 75-83.
- Foster, J.R.; Gershell, W.J.; and Goldfarb, A.I. Lithium treatment in the elderly. Journal of Gerontology, 32:299-302, 1977.
- *Fracchia, J.; Sheppard, C.; Canale, D.; Ruest, E.; Cambria, E.; and Merlis, S. Combination drug therapy for the psychogeriatric patient: Comparison of dosage levels of the same psychotropic drugs, used singly and in combination. Journal of the American Geriatrics Society, 23(11):508-511, 1975.
- Fracchia, J.; Sheppard, C.; and Merlis, S. Treatment patterns in psychiatry: Clinical and personality features of elderly hospitalized patients during milieu, single-drug, and multiple-drug programs. Journal of the American Geriatrics Society, 22:212-216, 1974.
- Frank, B.; Marel, R.; Handwerker, B.; and Twersky, J. "Drug Use Among Senior Citizens in New York City." Paper presented at 30th Annual Meeting of the Alcohol and Drug Problems Association of North America, Washington, D.C., August 1979.
- Freeman, J.F. Some principles of medication in geriatrics. Journal of the American Geriatrics Society, 22:289-295, 1974.
- Freeman, J.T. Clinical Principles and Drugs in the Aging. Springfield, Ill.: Thomas, 1963.
- Freund, G. The interaction of chronic alcohol consumption and aging on brain structure and function. Alcoholism, 6(1):13-21, 1982.
- Freund, G., and Butters, N. Alcohol and aging: Challenges for the future. Alcoholism, 6(1):1-2, 1982.
- Friedel, R.O. Pharmacokinetics in the geropsychiatric patient. In: Lipton, M.A.; DiMascio, A.; and Killam, K.F.; eds. Psychopharmacology: A Generation of Progress. New York: Raven Press, 1978.
- *Friedel, R.O. Pharmacokinetics of psychotherapeutic agents in aged patients. In: Eisdorfer, C., and Friedel, R.O., eds. Cognitive and Emotional Disturbance in the Elderly: Clinical Issues. Chicago: Year Book Medical Publishers, 1977. Pp. 139-149.

- Friend, D.G. Drug therapy and the geriatric patient. Clinical Pharmacology and Therapeutics, 2:832-836, 1961.
- Frisk, P.A., and Simonson, W. The pharmacist's expanding role in home health care of geriatric patients. Geriatrics, 32:80-85, 1977.
- Fulda, T.R. Prescription Drug Data Summary 1974. Washington, D.C.: Social Security Administration, U.S. Dept. of Health, Education, and Welfare, 1974.
- Funkhouser, M.J. Identifying alcohol problems among elderly hospital patients. Alcohol Health and Research World, 2:27-34, 1977-78.
- Gabrynowicz, J.W. Use and abuse of drugs in geriatric medicine. Australia's Nurses Journal, 6(9):32-32, 1977.
- Gaeta, M.J., and Caetano, R.J. The Elderly, Their Health and the Drugs in Their Life. Dubuque, Iowa: Kendall-Hunt, 1977.
- Caetano, R., and Epstein, B. Drug use among the elderly: Education the only answer. U.S. Journal of Drug and Alcohol Dependence, July 1977.
- *Caetano, R.J., and Epstein, B.T. Strategies and techniques for drug education among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 163-177.
- Caetano, R.J., and Gaeta, M.J. Strategies for dealing with substance abuse among the elderly. In: Smith, D.E., et al., eds. A Multicultural View of Drug Abuse. Cambridge, Mass.: G.K. Hall & Co./Schenkman Publishing, 1978. Pp. 496-502.
- Gaillard, A., and Perrin, P. /Alcoholism in aged persons./ (Fre) Revue de l'Alcoolisme, 15:5-32, 1969.
- *Gaitz, C.M., and Baer, P.E. Characteristics of elderly patients with alcoholism. Archives of General Psychiatry, 24:372-378, 1971.
- Gallup, G. The rising number of drinkers. Washington Post, June 10, 1974.
- Garland, T.F. As long-term care grows, the patient moves closer to the pharmacist. Pharmacy Times, 44:62-64, 1978.
- Gebhardt, M.W.; Governali, J.F.; and Hart, E.J. Drug related behavior, knowledge, and misconceptions among a selected group of senior citizens. Journal of Drug Education, 8:85-92, 1978.
- Geschwind, N. Organic problems in the aged: Brain syndromes and alcoholism; discussion. Journal of Geriatric Psychiatry, 11(2):161-166, 1978.
- Gibson, I.I.J.M. Hospital drugs in the home. Gerontologia clinica, 16:10-13, 1974.
- Gibson, I.I.J.M., and O'Hare, M.M. Prescription of drugs for old people at home. Gerontologia clinica, 10:271-280, 1968.
- Gibson, M.R., and Lott, R.S. Suicide and the role of the pharmacist. Journal of the American Pharmaceutical Association, ns12:457, 1972.
- *Glantz, M. Predictions of elderly drug abuse. Journal of Psychoactive Drugs, 13(2):117-126, 1981.
- Glantz, M. "When Adults Become the 'Elderly': Speculations on Drug Abuse in the Later Years." Paper presented at the meeting of the American Psychological Association, Montreal, Canada, 1980.
- Glaser, B.G., and Strauss, A.L. Time for Dying. Chicago, Ill: Aldine, 1968.

- Glasscock, J. "Identification, Intervention and Referral to Treatment." Paper presented at San Francisco Conference on Aging and Alcoholism, San Francisco, Calif., August 1981.
- Glatt, M.M. Experiences with elderly alcoholics in England. Alcoholism: Clinical and Experimental Research, 2(1):23-26, 1978.
- Glatt, M.M., and Rosin, A.J. Aspects of alcoholism in the elderly. Lancet, 2:473-475, 1964.
- Glatt, M.M.; Rosin, A.J.; and Jauhar, P. Alcoholic problems in the elderly. Age and Ageing, Suppl:64-71, 1978.
- Glenn, N.D. Age, birth cohorts, and drinking: An illustration of the hazards of inferring effects from cohort data. Journal of Gerontology, 36:362-369, 1981.
- Glennblatt, D.L.; Dominick, J.R.; Stotsky, B.A.; and DiMascio, A. Phenothiazine-induced dyskinesia in nursing home patients. Journal of the American Geriatrics Society, 16:27-34, 1968.
- Goby, M.J. Follow-up study of patients over 60 treated at the Alcoholism Treatment Center of Lutheran General Hospital. In: Goby, M.J., and Keller, J.E., eds. Perspectives on Treatment of Alcoholism. Park Ridge, Ill.: Lutheran General Hospital, 1978. Pp. 141-143.
- Goddard, D., and Drieman, P. "Positive Treatment Approaches to the Elderly Alcoholic." Presented at the 1st International Action Conference on Substance Abuse, Phoenix, Arizona, November 1977.
- Goldberg, D.P.; Cooper, B.; Eastwood, M.D.; Kedward, H.B.; and Shepherd, M. A standardized psychiatric interview for use in community surveys. British Journal of Preventive and Social Medicine, 24:18-23, 1970.
- Goldenberg, H. Eliminating errors in drug administration. Nursing Homes, 19:33-34, 1970.
- Goldstein, S.E. The use of mesoridazine in geriatrics. Current Therapeutic Research--Clinical and Experimental, April 1974. Pp. 316-323.
- Goldstein, S.E.; Birnbom, F.; Lancee, W.J.; and Darke, A.C. Comparison of oxazepam, flurazepam and chloral hydrate as hypnotic sedatives in geriatric patients. Journal of the American Geriatrics Society, 26:366-371, 1978.
- Gollub, J. Psychoactive drug misuse among the elderly: A review of prevention and treatment programs. In: Stanford Research Institute. The Aging Process and Psychoactive Drug Use. National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979.
- *Gollub, J. Psychoactive drug misuse among the elderly: A review of prevention and treatment programs. In: Kayne, R.C., ed. Drugs and the Elderly. Los Angeles: University of Southern California Press, 1978. Pp. 84-102.
- *Gomberg, E.L. Drinking and Problem Drinking Among the Elderly. Ann Arbor: Institute of Gerontology, University of Michigan, 1980.
- Gomberg, E.S. Prevalence of alcoholism among ward patients in a Veterans Administration hospital. Journal of Studies on Alcohol, 36:1458-1467, 1975.
- Goodard, D.L. "Effective Treatment for Addiction in the Elderly." Abstract from the 29th Annual Meeting, Alcohol and Drug Problems Association of North America, Seattle, Washington, September 1978.
- Gordis, L.; Markowitz, M.; and Lilienfeld, A.M. The inaccuracy in using interviews to estimate patient reliability in taking medications at home. Medical Care, 7:49-54, 1969.
- Gordon, J.J.; Kirchoff, K.L.; and Phillips, B.K. Alcoholism and the Elderly: A Study of Problems and Prospects. Des Moines, Iowa: Elderly Program Development Center, Iowa Commission on the Aging and Iowa Division on Alcoholism, 1976.

- Gorrod, J.W. Absorption, metabolism and excretion of drugs in geriatric subjects. Gerontologia clinica, 16:30-42, 1974.
- Gorwitz, K.; Bahn, A.; Warthen, F.J.; and Cooper, M. Some epidemiological data on alcoholism in Maryland. Quarterly Journal of Studies on Alcohol, 31:423-443, 1970.
- Gotz, B.E., and Gotz, V.P. Drugs and the elderly. American Journal of Nursing, August 1978. Pp. 1347-1351.
- Goy, J. Alcoholism in the elderly. Growing Older, 6:13-15, 1976.
- Gradillas, R.V. /Alcoholism in old age./ (Sp) Actas Luso-Espanolas de Neurologia, Psiquiatria y Ciencias Afines, 2(1):3-14, 1974.
- Graux, P. /Alcoholism of the elderly./ (Fre) Revue de l'Alcoolisme, 15:46-48, 1969.
- *Green, B. The politics of psychoactive drug use in old age. The Gerontologist, 18(6):525-530, 1978.
- Green, C. "A Study of Drug Use and Misuse by the Elderly in Osceola County, Florida." Unpublished study, 1977.
- Green, R.C.; Carroll, G.J.; and Buxton, W.D. Drug addiction among physicians: The Virginia experience. Journal of the American Medical Association, 236:1372-1375, 1976.
- Greenblatt, D.J.; Allen, M.D.; and Shader, R.I. Toxicity of high-dose flurazepam in the elderly. Clinical Pharmacology and Therapeutics, 21:355-361, 1977.
- Greenblatt, D.J.; Sellers, E.M.; and Shader, R.I. Drug disposition in old age. New England Journal of Medicine, 306(18):1081-1088, 1982.
- Greenlick, M.R., and Darsky, B.J. Prescription utilization by the aged. Journal of Gerontology, 19:149-156, 1964.
- Gubrium, J. Living and Dying at Murray Manor. New York: St. Martin's Press, 1975.
- Gunderson, R. Alcoholism, Like the Years, Can Sneak up on You. A Report of a Year-Long Experimental Elderly Outreach Project in King County, Washington. Seattle, Wash.: Division of Alcoholism Services, 1978.
- Guttmann, D. Implications of current research on drug use/drug misuse by the elderly for health care providers. In: Faulkinberry, R., ed. Drug Problems of the 70's; Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980.
- Guttmann, D. A study of legal drug use by older Americans. In: Hendricks, J., and Hendricks, C.D., eds. Dimensions of Aging: Readings. Cambridge, Mass.: Winthrop Publishers, 1979. Pp. 172-182.
- *Guttmann, D. Patterns of legal drug use by older Americans. Addictive Diseases: an International Journal, 3(3):337-356, 1978.
- Guttmann, D. A Survey of Drug Taking Behavior of the Elderly. Washington, D.C.: The Catholic University of America, 1977.
- Guttmann, D.; Sirratt, J.D.; Carrigan, Z.H.; and Holahan, N.A. A study of legal drug use by older Americans. In: Smith, D.E., et al., eds. A Multicultural View of Drug Abuse. Cambridge, Mass.: G.K. Hall & Co./Schenkman Publishing, 1978. Pp. 485-495.
- Hader, M. The use of selected phenothiazines in elderly patients: A review. Journal of Mt. Sinai Hospital, 32:622-633, 1965.
- *Hale, W.E.; Marks, R.G.; and Stewart, R.B. Drug use in a geriatric population. Journal of the American Geriatrics Society, 27(8):374-377, 1979.

- Hall, M.R.P. Use of drugs in elderly patients. New York State Journal of Medicine, 75:67-71, 1975.
- Hall, M.R.P. Adverse drug reaction in the elderly. Gerontologia clinica, 16:144-150, 1974.
- Hall, M.R.P. Drugs in the elderly. Gerontologia clinica, 16:1-2, 1974.
- Hall, M.R.P. Drug therapy in the elderly. British Medical Journal, 4:582-584, 1973.
- Hall, P. Differential diagnosis and the treatment of depression in the elderly. Gerontologia clinica, 16:126-136, 1974.
- Hanan, Z.I. Geriatric medications. How the aged are hurt by drugs meant to help. RN, 41:51-61, 1978.
- Hansten, P.D. Drug Interactions. Philadelphia, Pa.: Lea & Febiger, 1979.
- Harford, T. "The Distribution of Alcohol Consumption in Metropolitan Boston by Day of Week." Unpublished. 1977.
- *Harford, T.C., and Mills, G.S. Age-related trends in alcohol consumption. Journal of Studies on Alcohol, 39(1):207-210, 1978.
- Harrill, I., and Cervone, N. Vitamin status of older women. American Journal of Clinical Nutrition, 30:431-440, 1977.
- *Harrington, L.G., and Price, A.C. Alcoholism in a geriatric setting. Journal of the American Geriatrics Society, 10:197-211, 1962.
- Harris, C.S. Aging and alcohol use: A pilot project. Perspective on Aging, 7(4):4-8, 1973.
- Hartford, J.T., and Samorajski, T. Alcoholism in the geriatric population. Journal of the American Geriatrics Society, 30(1):18-24, 1982.
- Hasenbush, L.L. Successful brief therapy for a retired elderly man with intractable pain, depression and drug and alcohol dependence. Journal of Geriatric Psychiatry, 10:71-88, 1977.
- Haug, M.R. Elderly Patients and Their Doctors. New York: Springer Publishing Co., 1981.
- *Heller, F.J., and Wynne, R. Drug misuse by the elderly: Indications and treatment suggestions. In: Senay, E.; Shorty, V.; and Alksne, H.; eds. Developments in the Field of Drug Abuse. Cambridge, Mass.: Schenkman, 1975. Pp. 945-955.
- Hemminki, E. General practitioners' indications for psychotropic drugs. Scandinavian Journal of Social Medicine, 2:79-85, 1974.
- Hemminki, E., and Heikkila, J. Elderly people's compliance with prescriptions and quality of medication. Scandinavian Journal of Social Medicine, 3:87-92, 1975.
- Hershey, J.C.; Morton, B.G.; Davis, J.B.; and Reichgott, M.J. Patient compliance with anti-hypertensive medication. American Journal of Public Health, 70:1081-1089, 1980.
- Hertzenberg, S. /Can drug abuse in the aged be ameliorated?/ (Nor) Tidsskrift for den Norske Laegeforening, 98(9):463, 1978.
- Hewick, D.S.; Newbury, P.; Hopwood, S.; and Naylor, G. Age as a factor affecting lithium therapy. British Journal of Clinical Pharmacology, 4:201-205, 1977.
- Hirschfeld, R.M.A., and Klerman, G.L. Treatment of depression in the elderly. Geriatrics, October 1979. P. 51.
- Hirschi, T. Causes of Delinquency. Berkeley, Calif.: University of California Press, 1969.

- *Hochhauser, M. Learned helplessness and substance abuse in the elderly. Journal of Psychoactive Drugs, 13(2):127-133, 1981.
- Hodkinson, H.M. Psychological medicine: The elderly mind. British Medical Journal, 2(5961):23-25, 1975.
- Hodkinson, H.M. Biomedical side effects of drugs in the elderly. Gerontologia clinica, 16:175-178, 1974.
- Hoffman, H., and Nelson, P.C. Personality characteristics of alcoholics in relation to age and intelligence. Psychological Reports, 29:143-146, 1971.
- Hoffman, H., and Noem, A.A. Alcoholism among parents of male and female alcoholics. Psychological Reports, 36:322, 1975.
- Hoffman, H., and Wefring, L.R. Sex and age differences in psychiatric symptoms of alcoholics. Psychological Reports, 30:887-889, 1972.
- Hollister, L.E. Psychotherapeutic drugs. In: Levenson, A.J., ed. Neuropsychiatric Side Effects of Drugs in the Elderly. New York: Raven Press, 1979.
- Hollister, L.E. Interactions of psychotherapeutic drugs with other drugs and with disease states. In: Lipton, M.A.; DiMascio, A.; and Killam, K.F.; eds. Psychopharmacology: A Generation of Progress. New York: Raven Press, 1976.
- Hollister, L.E. Prescribing drugs for the elderly. Geriatrics, 32:71-73, 1977.
- Hollister, L.E. Drugs for mental disorders in old age. Journal of the American Medical Association, 234:195-198, 1975.
- Holloway, D.A. Drug problems in the geriatric patient. Drug Intelligence and Clinical Pharmacy, 8:632-642, 1974.
- Holmes, R.B., and Solitryn, M. Promoting drug education at a community center for older adults. In: Smith, D.E., et al., eds. A Multicultural View of Drug Abuse. Cambridge, Mass.: G.K. Hall & Co./Schenkman Publishing, 1978. Pp. 479-484.
- Honigfeld, G.; Rosenblum, M.P.; Blumenthal, I.J.; Lambert, H.L.; and Roberts, A.J. Behavioral improvement in the older schizophrenic patient: Drug and social therapies. Journal of the American Geriatrics Society, 13:57-72, 1965.
- Howard, J.B.; Strong, K.E., Sr.; and Strong, K.E., Jr. Medication procedures in a nursing home: Abuse of PRN orders. Journal of the American Geriatrics Society, 25:83-84, 1977.
- Howel, T.H. Analgesics, hypnotics, and sedatives. Journal of Gerontology, 16:395, 1961.
- Hussar, D.A. Patient noncompliance. Journal of the American Pharmacological Association, 15:183-190, 1975.
- Illich, I. Medical Nemesis: The Expropriation of Health. New York: Pantheon Books, 1976.
- Inciardi, J.A.; McBride, D.C.; and Pottieger, A.E. Gambling with death: Some theoretical and empirical considerations on drugs and suicide. In: Lettieri, D.J., ed. Drugs and Suicide. Beverly Hills, Calif.: Sage Publications, 1978a.
- *Inciardi, J.A.; McBride, D.C.; Russe, B.R.; and Wells, K.S. Acute drug reactions among the aged: A research note. Addictive Diseases: an International Journal, 3(3):383-388, 1978b.
- *Ingman, S.R.; Lawson, I.R.; Pierpaoli, P.G. and Blake, P. A survey of the prescribing and administration of drugs in a long-term care institution for the elderly. Journal of the American Geriatrics Society, 23(7):309-316, 1975.

- Ishister, J. Testimony before the Subcommittee on Aging and Subcommittee on Alcoholism and Narcotics of the U.S. Senate Committee on Labor and Public Welfare, Washington, D.C., June 7, 1976.
- Isler, C. Teaching the elderly to avoid accidental drug abuse. RN, 40(11):39-42, 1977.
- James, I. Prescribing for the elderly: Check the interaction and cut down on your calls. Modern Geriatrics, 6:7-14, 1976a.
- James, I. Prescribing for the elderly: Why it's best to keep it simple. Modern Geriatrics, 6:25-28, 1976b.
- Janowsky, D.S.; El-Yousef, M.K.; and David, J.M. Side effects associated with psychotropic drugs. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 19-28.
- Jarvick, L.; Greenblatt, D.J.; and Harman, D.; eds. Clinical Pharmacology and the Aged Patient. New York: Raven Press, 1981.
- Jeffrey, D.W. Perspectives for psychopharmacologic research in gerontology. Journal of the American Geriatrics Society, 22:304-306, 1974.
- Jellinek, E.M. Phases in the drinking history of alcoholics: Analysis of a survey conducted by the official organ of Alcoholics Anonymous. Quarterly Journal of Studies on Alcohol, 7:1-88, 1946.
- Jenkins, B.L. A case against sleepers. Journal of Gerontological Nursing, 2:10-13, 1976.
- Jessup, L.E. Nursing responsibilities in drug administration. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 35-48.
- Jessup, L.E. Nursing responsibilities in drug administration. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 57-63.
- Johnson, E.F. Look at it this way: Some aspects of the drug mix-up problem among black, poor, aged, and female patients. Journal of the National Medical Association, 70:745-747, 1978.
- Johnson, L.A., and Goodrich, C.H. "Use of Alcohol by Persons Sixty-Five and Over: Upper East Side of Manhattan." Report to the National Institute on Alcohol Abuse and Alcoholism from Mt. Sinai School of Medicine, City University of New York, 1974. Cited by: National Institute on Alcohol Abuse and Alcoholism in Alcohol and Health. Springfield, Va.: U.S. National Technical Information Service, 1974.
- Jowdy, A.W., and Braucher, C.L. Pharmaceutical services for the elderly patient. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 94-104.
- Judge, T.G., and Caird, F.I. Drug Treatment of the Elderly Patient. Kent, England: Pitman Medical Publishing Co., 1978.
- Kabat, H.F. Nursing's role in geriatric drug therapy. Geriatric Nursing, 3:8-11, 1967.
- Kabat, H.F.; Kidder, S.W.; Marttila, J.K.; and Stewart, J.E. Drug Utilization Review in Skilled Nursing Facilities: A Manual System for Performing Sample Studies of Drug Utilization. Washington, D.C.: U.S. Dept. of Health, Education, and Welfare, 1975.
- *Kalchthaler, T.; Coccaro, E.; and Lichtiger, S. Incidence of polypharmacy in a long-term care facility. Journal of the American Geriatrics Society, 25(7):308-313, 1977.
- Kantor, H.I.; Milton, L.J.; and Ernst, M.L. Comparative psychologic effects of estrogen administration on institutional and noninstitutional elderly women. Journal of the American Geriatrics Society, 26:9-16, 1978.

- Kaplan, B.H.; Cassel, J.C.; and Gore, S. Social support and health. Medical Care, 15:47-58, 1977.
- Kastenbaum, R. Beer, wine, and mutual gratification in the gerontopolis. In: Kent, D.P.; Kastenbaum, R.; and Sherwood, S.; eds. Research, Planning and Action for the Elderly. New York: Behavioral Publications, 1972. Pp. 365-395.
- *Kastenbaum, R. Wine and fellowship in aging: An exploratory action program. Journal of Human Relations, 13:266-276, 1965.
- Kastenbaum, R., and Slater, P.E. Effects of wine on the interpersonal behavior of geriatric patients: An exploratory study. In: Kastenbaum, R., ed. New Thoughts on Old Age. New York: Springer, 1964. Pp. 191-204.
- Kastenbaum, R.; Slater, P.E.; and Aisenberg, R. Toward a conceptual model of geriatric psychopharmacology: An experiment with thioridazine and dextro-amphetamine. The Gerontologist, 4:68-71, 1964.
- Kayne, R. Drugs and the aged. In: Burnside, I., ed. Nursing and the Aged. New York: McGraw-Hill, 1976.
- Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978.
- Kayne, R.C., and Cheung, A. An application of clinical pharmacy in extended care facilities. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 65-69.
- Kelly, P. An experiment in self-medication for older people. Canadian Nurse, 68:41-43, 1972.
- Kennedy, R.D. Drug therapy for cardiovascular disease in the aged. Journal of the American Geriatrics Society, 23:113-120, 1975.
- Kent, E.A., and Gitman, L. Chemopsychiatric institutional care of the aged. Geriatrics, 15:480-486, 1960.
- Kent, S. Continuous drug delivery methods reflect progress in therapy for chronic diseases. Geriatrics, 32:146-149, 1977.
- Khan, A.; Hornblow, A.R.; Walshe, J.W. Benzodiazepine dependence: A general practice survey. New Zealand Medical Journal, 93(687):19-21, 1981.
- *Khantzian, E.J. Organic problems in the aged: Brain syndromes and alcoholism. Discussion: On the nature of the dependency and denial problems of alcoholics. Journal of Geriatric Psychiatry, 11(2):191-202, 1978.
- King, A.P. Cocktail hour in a nursing home. Nursing Care, 10(2):26, 1977.
- Kinney, J., and Leaton, O. Loosening the Grip: A Handbook of Alcohol Information. St. Louis, Mo.: C.V. Mosby, 1978.
- Klatsky, A.L.; Friedman, G.O.; Seigelaub, A.B.; Gerard, M.J. Alcohol consumption among white, black, or oriental men and women; Kaiser-Permanente multiphasic health examination data. American Journal of Epidemiology, 105(4):311-323, 1977.
- Kleinman, P.H., and Lukoff, I.F. Ethnic differences in factors related to drug use. Journal of Health and Social Behavior, 19(2):190-199, 1978.
- Klopfer, W.G. Clinical patterns of aging. In: Wolman, B.B., ed. Handbook of Clinical Psychology. New York: McGraw-Hill, 1965. Pp. 826-837.
- Klotz, U.; Avant, G.R.; Hoyumpa, A.; Schenker, S.; and Wilkinson, G.R. The effects of age and liver disease on the disposition and elimination of diazepam in adult man. The Journal of Clinical Investigation, 55:347-359, 1975.

- Knapp, D.A., and Knapp, D.A. The elderly and nonprescribed medications. Contemporary Pharmacy Practice, 3(2):85-89, 1980.
- Knupfer, G., and Room, R. Age, sex and social class as factors in amount of drinking in a metropolitan community. Social Problems, 12:224-240, 1964.
- Korcock, M. Drugs and the elderly. Canadian Medical Association Journal, 118:1320-1326, 1978.
- Kral, V.A. An overview of psychopharmacology of old age. Psychopharmacology Bulletin, 12:51-52, 1976.
- Kramer, M. Patients in State and county mental hospitals. Public Health Service Publication No. 1921, National Institute of Mental Health. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1969.
- Kramer, M. Delirium as a complication of imipramine therapy in the aged. American Journal of Psychiatry, 120:502-503, 1963.
- Kratz, A.M. The senescent drug "abuser": A new sociologic problem. American Journal of Pharmacy, 149:119-124, 1977.
- Krupka, L.R., and Vener, A.M. Hazards of drug use among the elderly. The Gerontologist, 19:90-95, 1979a.
- Krupka, L.R., and Vener, A.M. The necessity of monitoring drugs used by the elderly: Response to a physician. The Gerontologist, 19:233-235, 1979b.
- Lambing, M.L.; Kawamura, I.; Motoyama, D.; and Uyeicni, R. "Idea Exchange: Preventing Misuse of Drugs by Elders." Paper presented to the Western Gerontological Society, Anaheim, California, March 1980.
- Lamy, P.P. Drug prescribing for the elderly. Bulletin, New York Academy of Medicine, 57:718, 1981a.
- Lamy, P.P. Special features of geriatrics prescribing. Geriatrics, 36(12):42, 1981b.
- Lamy, P.P. Drug information for senior citizens. Drug Therapy, 10(9):113, 1980a.
- Lamy, P.P. Drug interactions and the elderly--a new perspective. Drug Intelligence and Clinical Pharmacy, 14:513, 1980b.
- Lamy, P.P. How your patients' diet can affect drug response. Drug Therapy, 10(8):82, 1980c.
- Lamy, P.P. Misuse and abuse of drugs by the elderly. In: Faulkinberry, R., ed. Drug Problems of the 70's; Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980d.
- Lamy, P.P. Misuse and abuse of drugs by the elderly: Another view. American Pharmacy, 20(5):14-17, 1980e.
- Lamy, P.P. Prescribing for the Elderly. Littleton, Mass.: John Wright-Publishing Sciences Group, 1980f.
- *Lamy, P.P. Considerations in drug therapy of the elderly. Journal of Drug Issues, 9:27-45, 1979a.
- Lamy, P.P. OTC drugs and the elderly. Current Prescribing, 11:42, 1979b.
- *Lamy, P.P. Therapeutics and the elderly. Addictive Diseases: an International Journal, 3(3): 311-335, 1978.
- Lamy, P.P. What the physician should keep in mind when prescribing drugs for an elderly patient. Geriatrics, 32:37-38, 1977.

- Lamy, P.P. Geriatric drug therapy. Clinical Medicine, 81:52-57, 1974.
- Lamy, P.P.; Beardsley, R.S.; and Feinberg, M. Elder-Ed: Consumer drug education to older persons. American Journal of Pharmaceutical Education, 45(1):36, 1981.
- Lamy, P.P., and Kitler, M.E. Drugs and the geriatric patient. Journal of the American Geriatrics Society, 19:23-33, 1971a.
- Lamy, P.P., and Kitler, M.E. The geriatric patient: Age-dependent physiologic and pathologic changes. Journal of the American Geriatrics Society, 19:871-879, 1971b.
- Lamy, P.P., and Krug, B.H. Drug therapy review in nursing homes: Proposed standards and guidelines. Contemporary Pharmacy Practice, 4:125, 1981.
- Lamy, P.P., and Vestal, R.E. Drug prescribing for the elderly. Hospital Practice, 11:111-118, 1976. Also in: Reichel, W., ed. The Geriatric Patient. New York: HP Publishing Co., 1979. Pp. 1-8.
- Landress, H.J. Medication misuse by the elderly: The development of training manuals for health professionals. In: Faulkinberry, R., ed. Drug Problems of the 70's; Solutions for the 80's. Lafayette, La.: Endac Enterprises/Print Media, 1980.
- Lasagna, L. Drug effects as modified by aging. Journal of Chronic Diseases, 3:567-574, 1956.
- Latiolais, C.J., and Berry, C.C. Misuse of prescription medications by outpatients. Drug Intelligence and Clinical Pharmacy, 3:270-277, 1969.
- Law, R., and Chalmers, C. Medicines and elderly people: A general practice survey. British Medical Journal, 1:565-568, 1976.
- Leake, C.D., and Silverman, M. The clinical use of wine in geriatrics. Geriatric Focus, 6:175-180, 1967.
- Learoyd, B.M. Psychotropic drugs and the elderly patient. The Medical Journal of Australia, 1:1131-1133, 1972.
- Leber, W.R., and Parsons, O.A. Premature aging and alcoholism. The International Journal of the Addictions, 17(1):61-88, 1982.
- Lech, S.V.; Friedman, G.D.; and Ury, H.K. Characteristics of heavy users of outpatient prescription drugs. Clinical Toxicology, 8:599-610, 1975.
- Lee, P.V. Drug therapy in the elderly: The clinical pharmacology of aging. Alcoholism: Clinical and Experimental Research, 2:39-42, 1978.
- Lee, R.H. The Chinese in the United States of America. Hong Kong: Cathay Press, 1960.
- Lefroy, R.B. Psychotropic drug use in the elderly: Public ignorance or indifference? Comment 2. Medical Journal of Australia, 2(2):66-67, 1976.
- Lehmann, H.E. The use of medication to prevent custodial care. In: Eisdorfer, C., and Friedel, R.O., eds. Cognitive and Emotional Disturbance in the Elderly: Clinical Issues. Chicago: Year Book Medical Publishers, 1977.
- Lehmann, H.E., and Ban, T.A. Psychometric tests in evaluation of brain pathology, response to drugs. Geriatrics, 25:142-147, 1970.
- Lehmann, P. Food and drug interactions. Aging, Sept.-Oct. 1980. Pp. 33-35.
- Leigh, D.H. "Prevention Work Among the Elderly: A Workable Model." Paper presented at NCA National Alcoholism Forum, Seattle, Washington, May 1980.

- Lenhart, D.G. The use of medications in the elderly population. Nursing Clinics of North America, 11:135-143, 1975.
- Lennox, K. Expanding Health Benefits for the Elderly: Prescription Drugs. Washington, D.C.: The Urban Institute, 1979.
- Levenson, A.J. What is that pill doing to you? Drug use and misuse among the aged. Generations, 3:12-13, 1979a.
- Levenson, A.J., ed. Neuropsychiatric Side Effects of Drugs in the Elderly. New York: Raven Press, 1979b.
- Levy, G. Pharmacokinetic assessment of the effect of age on the disposition and pharmacologic activity of drugs. Advances in Experimental Medicine and Biology, 97:47-53, 1978.
- Levy, M.R., and Glanz, K. Drug misuse among the elderly: An educational challenge for health professionals. Journal of Drug Education, 11(1):61-76, 1981.
- Libow, L.S., and Mehl, B. Self-administration of medications by patients in hospitals or extended care facilities. Journal of the American Geriatrics Society, 18:81-85, 1970.
- *Lief, T.P.; Allen, H.D.; and Bloom, W.A., Jr. Drug abuse and the private practice medicine. The International Journal of the Addictions, 16(4):731-739, 1981.
- Linn, M.W. Attrition of older alcoholics from treatment. Addictive Diseases: an International Journal, 3:437-447, 1978.
- *Linn, M.W.; Linn, B.S.; and Greenwald, S.R. The alcoholic patient in the nursing home. Aging and Human Development, 3:273-277, 1972.
- Lipshitz, K., and Kline, N.S. Psychopharmacology in geriatrics. In: Gilbert, W., and Del Giudice, J., eds. Principles of Psychopharmacology. New York: Academic Press, 1970.
- Lloyd-Evans, S.; Brocklehurst, J.C.; and Palmer, M.K. Assessment of drug therapy in chronic brain failure. Gerontology, 24:304-311, 1978.
- Locke, B.Z.; Kramer, M.; and Pasamanick, B. Alcoholic psychoses among first admissions to public mental hospitals in Ohio. Quarterly Journal of Studies on Alcohol, 21:457-474, 1960.
- *Lofholm, P. Self-medication by the elderly. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 8-28.
- Lofholm, P. Self-medication by the elderly. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 7-23.
- Lowenthal, M.F. Lives in Distress: The Paths of the Elderly to the Psychiatric Ward. New York: Basic Books, 1964. Ch. 8.
- Lubin, L.S. How we serve the elderly in nursing homes and hi-rise apartments. Pharmacy Times, April 1978. Pp. 54-57.
- Lucas, M. Alcoholism in homes for the aged in the Paris region. Revue de l'Alcoolisme, 14:268-284, 1969.
- Luke, E.; Norton, W.; and Denbigh, K. Prevalence of psychologic impairment in an advanced-age population. Journal of the American Geriatrics Society, 30(2):114-122, 1982.
- Lundin, D.V. Medication taking behavior of the elderly, a pilot study. Drug Intelligence and Clinical Pharmacy, 12:518-522, 1978a.
- Lundin, D.V. Must taking medication be a dilemma for the independent elderly? Journal of Gerontological Nursing, 4:25-27, 1978b.

- Luther, B. Bridging the gap. Comment, 1(2):13-15, 1981.
- Luthringer, R. Outreach and intervention: Problems and methods. In: Newman, J., ed. Alcohol and the Older Person. Pittsburgh, Pa.: University of Pittsburgh, 1978. Pp. 69-82.
- Lutterotti, A. De l'aspect social de l'alcoolisme dans la vieillesse. Revue d'Hygiene et Medecine Scolaires et Universitaires, 15:751-760, 1967.
- Lyle, W.M. Drugs prescribed for the elderly. Journal of the American Optometric Association, 48:1029-1032, 1977.
- Lyle, W.M., and Hayhoe, D.A. A literature survey of the potentially adverse effects of the drugs commonly prescribed for the elderly. Journal of the American Optometric Association, 47:768-778, 1976.
- MacDonald, M.J. Pub sociotherapy. The Canadian Nurse, 68:30-32, 1972.
- Maddock, R.K., Jr. Patient cooperation in taking medicines. Journal of the American Medical Association, 199:169-172, 1967.
- Maddox, G.L. Drugs, physicians, and patients. In: Petersen, D.M.; Whittington, F.J.; and Payrie, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 5-13.
- *Maddux, J.F., and Desmond, D.P. New light on the maturing out hypothesis in opioid dependence. Bulletin on Narcotics, 32(1):15-25, 1980.
- Magnus, A.B. The Illinois nursing home situation: Are tranquilizers used as "chemical strait-jackets?" Do adequate safeguards exist? Nursing Homes, 21:24-28, 1972.
- Magnus, A.B. Tranquilizers in nursing homes? A question of use, abuse, or misuse. Nursing Homes, 21:31-33, 1972.
- Malahy, B. The effect of instruction and labeling on the number of medication errors by patients at home. American Journal of Hospital Pharmacy, 23:283-292, 1966.
- Malzberg, B. A study of first admissions with alcoholic psychoses in New York State, 1943-1944. Quarterly Journal of Studies on Alcohol, 8:274-295, 1947.
- Mandel, H.G. Drugs and the older person--a brief pharmacological overview. Advances in Experimental Medicine and Biology, 97:1-4, 1978.
- *Mandolini, A. The social contexts of aging and drug use: Theoretical and methodological insights. Journal of Psychoactive Drugs, 13(2):135-142, 1981.
- Manfred, M.E.H. Adverse interaction of drugs. Nursing Care, 9:16-17, 1976.
- Manheimer, D.I., and Mellinger, G.D. Marijuana use among urban adults. Science, 166:1544-1545, 1969.
- Marden, P.G. Alcohol Abuse and the Aged, National Institute on Alcohol Abuse and Alcoholism. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1976.
- Mark, R.G. Telemedicine system: The missing link between homes and hospitals. Modern Nursing Home, 32:39-42, 1974.
- Martin, A.; Millard, P.H.; and Varney, J. Practical problems in the organization of a drug trial in two hospital groups. Gerontologia clinica, 16:100-104, 1974.
- Martin, E.W. Hazards of Medication: A Manual on Drug Interactions, Contraindications, and Adverse Reactions With Other Prescribing and Drug Information. 2d ed. Philadelphia: Lippincott, 1978.

- *Murttila, J.K.; Hammel, R.J.; Alexander, B.; and Zustiak, R. Potential untoward effects of long-term use of flurazepam in geriatric patients. Journal of the American Pharmaceutical Association, NS17(11):692-695, 1977.
- Maruta, T. Prescription drug-induced organic brain syndrome. American Journal of Psychiatry, 135(3):376-377, 1978.
- Matthew, H. Poisoning in the home by medicaments. British Medical Journal, 2:788-790, 1966.
- Maultsby, M.C. A behavioral approach to irrational anxiety and insomnia (decreasing prescription suicides). Journal of the American Medical Women's Association, 27:416-419, 1972.
- Maultsby, M.C., and Carpenter, L. Emotional self defense for the elderly. Journal of Psychotic Drugs, 10:157-160, 1978.
- Mayer, M.J. Alcohol and the elderly: A review. Health and Social Work, 4(4):128-143, 1979.
- Mayfield, D.G. Alcohol problems in the aging patient. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974.
- Mayo, J.A. Pharmacological roulette: A follow-up study of patients hospitalized for drug overdoses. American Journal of Public Health, 64:616, 1974.
- McCuan, E.R. "Social Variables of Geriatric Alcoholism." Paper presented to the NCA forum, Washington, D.C., May 1976.
- McCusker, J.; Cherubin, C.F.; and Zimberg, S.M. Prevalence of alcoholism in a general municipal hospital population. New York State Journal of Medicine, 71:751-754, 1971.
- McLennan, W.J. Drug interactions. Gerontologia clinica, 16:18-24, 1974.
- Means, B.J., and Lamy, P.P. Ophthalmic drugs for the geriatric patient. Clinical Medicine, 82:30-35, 1975.
- Means, B.J., and Lamy, P.P. Diagnostic tests, drugs and the geriatric patient. Journal of the American Geriatrics Society, 22:258, 1974.
- Mehta, D.; Mehta, S.; Mathew, P. Unusual abdominal complications of suicidal overdose of analgesic and psychotropic drugs in an elderly patient. Journal of the American Geriatrics Society, 26:43-46, 1978.
- Mellinger, G.D. The psychotherapeutic drug scene in San Francisco. In: Blachly, P.H., ed. Drug Abuse: Data and Debate. Springfield, Ill.: Thomas, 1973.
- Mellinger, G.D. Psychotherapeutic drug use among adults: A model for young drug users? Journal of Drug Issues, 1:274-285, 1971.
- Mellinger, G.D.; Balter, M.B.; and Manheimer, D.I. Patterns of psychotherapeutic drug use among adults in San Francisco. Archives of General Psychiatry, 25:385-394, 1971.
- Mellinger, G.D.; Balter, M.B.; Parry, H.J.; Manheimer, D.I.; and Cisin, I.H. An overview of psychotherapeutic drug use in the United States. In: Josephson, E., and Carroll, E.E., eds. Drug Use: Epidemiological and Sociological Approaches. Washington, D.C.: Hemisphere Publishing, 1974. Pp. 333-366.
- Melmon, K.L. Preventable drug reactions--causes and cures. New England Journal of Medicine, 284:1361-1368, 1971.
- Merlis, S., and Koepke, H.H. The use of oxazepam in elderly patients. Diseases of the Nervous System, 36:27-29, 1975.
- *Michigan Office of Services to the Aging and Michigan Office of Substance Abuse Services. Substance Abuse Among Michigan's Senior Citizens: Patterns of Use and Provider Perspectives, James, M., ed. Lansing, Mich.: the Offices, 1979.

- Michigan Office of Services to the Aging. Substance Abuse Among Michigan's Senior Citizens: Current Issues and Future Directions. Lansing, Mich.; the Office, 1978.
- Middleton, R.S.W. A comparison between maprotiline Ludiomil and imipramine in the treatment of depressive illness in the elderly. Journal of International Medical Research, 3:79-83, 1975.
- Miller, M.B. Clinical observations on drug management of psychiatrically ill aged patients. In: Fann, W.E., and Maddox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 83-102.
- Miller, R.L., and Algee, J. Noncompliance and drug toxicity in black, poor and aged patients. Journal of the National Medical Association, 70:733-736, 1978.
- *Milliren, J.W. Some contingencies affecting the utilization of tranquilizers in long-term care of the elderly. Journal of Health and Social Behavior, 18:206-211, 1977.
- Mishara, B. Alcohol in old age: Benefits and dangers. In: Newman, J., ed. Alcohol and the Older Person. Pittsburgh, Pa.: University of Pittsburgh, 1978. Pp. 24-38.
- Mishara, B. Research in problem drinking in old age. In: Newman, J., ed. Alcohol and the Older Person. Pittsburgh, Pa.: University of Pittsburgh, 1978. Pp. 39-68.
- Mishara, B., and Kastenbaum, R. Wine in the treatment of long-term geriatric patients in mental institutions. Journal of the American Geriatrics Society, 22:88-94, 1974.
- *Mishara, B.L., and Kastenbaum, R. Alcohol and Old Age. New York: Grune & Stratton, 1980.
- Mishara, B.L.; Kastenbaum, R.; Baker, F.; and Patterson, R.D. Alcohol effects in old age: An experimental investigation. Social Science and Medicine, 9:535-547, 1975.
- Modell, W. Introduction: Use of drugs in the elderly. Geriatrics, 29:50, 1974.
- Modell, W. Updating the sleeping pill. Geriatrics, 29:126-132, 1974.
- Monk, A.; Cryns, A.G.; and Cabral, R. Alcohol consumption and alcoholism as a function of adult age. The Gerontologist, 17(5, pt. 1):101, 1977.
- Morrant, J.C.A. Medicine and mental illness in old age. Canadian Psychiatric Association Journal, 20:309-312, 1975.
- Moss, B. Effective drug administration as reviewed by a physician/administrator. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 29-34.
- Moss, F.E., and Halamandaris, V.J. Nursing home drugs: Pharmaceutical Russian roulette. In: Moss, F.E., and Halamandaris, V.J., eds. Too Old, Too Sick, Too Bad. Germantown, Md.: Aspen Systems, 1977. Pp. 39-57.
- Muller, C. /Special: geriatric psychiatry./ (Ger) In: Alterspsychiatrie. Stuttgart: Georg Thieme, 1967. Pp. 108-164.
- Murdock, H.R. The effect of table wines on blood glucose levels in the geriatric subject. Geriatrics, 27:93-96, 1972.
- Musto, D.F., and Ramos, M.R. A follow-up study of the New Haven Morphine Maintenance Clinic of 1920. New England Journal of Medicine, 304:1071-1077, 1981.
- Myerson, D.J. Organic problems in the aged: Brain syndromes and alcoholism. As the alcoholic person grows older. Journal of Geriatric Psychiatry, 11(2):175-189, 1978.
- Nandy, K., ed. Geriatric Psychopharmacology. New York: Elsevier/North-Holland, 1979.

- *National Council on the Aging, Research and Evaluation Department. Effects of Retirement on Drinking Behavior, Harris, C.S. Washington, D.C.: the Council, 1977.
- National Council on the Aging. The Golden Years: A Tarnished Myth. Washington, D.C.: the Council, 1970.
- National Institute of Mental Health. General Hospital Inpatient Psychiatric Services, 1967. Mental Health Statistics, Series A, No. 4. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1969.
- National Institute on Alcohol Abuse and Alcoholism. Alcohol and Health: Second Special Report to the U.S. Congress. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1974.
- National Institute on Drug Abuse. State Drug Abuse Prevention Grant Programs: Program Announcement and Guidelines. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1980.
- National Institute on Drug Abuse. The Aging Process and Psychoactive Drug Use. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979.
- National Institute on Drug Abuse. Using your medicines wisely: A guide for the elderly. In: Staples, B.; Mandel, J.; and Davis, K. Elder-Ed: A Model Education Program: Prevention of Medicine Misuse for the Elderly. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979.
- National Institute on Drug Abuse. Drug Abuse Prevention for Older Americans. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1978.
- National Institute on Drug Abuse. Drug Use and the Elderly: Perspectives and Issues. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1975a.
- National Institute on Drug Abuse. Toward a national strategy for primary drug abuse prevention. (Final report Delphi II.) Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1975b.
- Neely, E., and Patrick, M.L. Problems of aged persons taking medications at home. Nursing Research, 17:52-55, 1968.
- Nelson, J.J. Relieving select symptoms of the elderly. Geriatrics, 30:133-142, 1975.
- Nelson, R.A. Use and misuse of vitamins in the elderly. Geriatrics, 37(2):138-140, 144, 1982.
- Newman, J., ed. Alcohol and the Older Person. Pittsburgh, Pa.: University of Pittsburgh, 1978.
- NIAAA Information and Feature Service. Activity Program Aids Older Alcoholics. Rockville, Md.: National Institute on Alcohol Abuse and Alcoholism, 1977.
- Nies, A.; Robinson, D.S.; Friedman, M.J.; Green, R.; Cooper, T.B.; Rauar, C.L.; and Ives, J.O. Relationship between age and tricyclic antidepressant plasma levels. American Journal of Psychiatry, 134:790-793, 1977.
- Nithman, C.J.; Parkhurst, Y.E.; and Sommers, E.B. Physicians' prescribing habits: Effects of Medicare. Journal of the American Medical Association, 217:585-587, 1971.
- Northwestern Community Services. Substance Use and Older Persons. Winchester, Va.: Northwestern Community Services, 1980.
- Nurco, D.N. A Case Study: Narcotic Addiction Over a Quarter of a Century in a Major American City, 1950-1977, National Institute on Drug Abuse. Services Research Report. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979.
- Nurco, D.N.; Cisin, I.H.; and Balter, M.B. Addict careers: I. A new typology. The International Journal of the Addictions, 16(8):1305-1325, 1981.

- Nurco, D.N.; Cisin, I.H.; and Balter, M.B. Addict careers: II. The first ten years. The International Journal of the Addictions, 16(8):1327-1356, 1981.
- Nurco, D.N.; Cisin, I.H.; and Balter, M.B. Addict careers: III. Trends across time. The International Journal of the Addictions, 16(8):1357-1372, 1981.
- Nussenfeld, S.R.; Davis, J.H.; Nazel, E.L.; Hirschman, J.C. Letter: Alcohol benefit for the geriatric patient. Journal of the American Medical Association, 227:439-440, 1974.
- O'Donnell, J.A. Narcotic Addicts in Kentucky. Washington, D.C.: Public Health Service, 1969.
- Ojesjo, L., and Hagnell, O. Prevalence of male alcoholism in a cohort observed for 25 years. Scandinavian Journal of Social Medicine, 8(?) :55-61, 1980.
- Olsen, E.J.; Bank, L.; and Jarvik, L.F. Gerovital-43: A clinical trial as an antidepressant. Journal of Gerontology, 33:514-520, 1978.
- Olson, J., and Johnson, J. Drug misuse among the elderly. Journal of Gerontological Nursing, 4:11-14, 1978.
- O'Neal, P.; Robins, E.; and Schmidt, E.H. A psychiatric study of attempted suicide in persons over sixty years of age. Archives of Neurology and Psychiatry, 75:275, 1956.
- Opstelten, G.E. "Island of Sobriety for the Frail Elderly." Paper presented at the San Francisco Conference on Aging and Alcoholism, San Francisco, Calif., August 1981.
- Ostfeld, A.; Smith, C.M.; and Stotsky, B.A. The systemic use of procaine in the treatment of the elderly: A review. Journal of the American Geriatrics Society, 25:1-19, 1977.
- Ouslander, J.G. Drug therapy in the elderly. Annals of Internal Medicine, 95:711, 1981.
- Overton, M.H., and Lukert, B.P. Clinical Nutrition: A Physiological Approach. Chicago: Year Book Medical Publishers, 1977.
- *Parker, E.S., and Noble, E.P. Alcohol and the aging process in social drinkers. Journal of Studies on Alcohol, 41(1):170-178, 1980.
- Parker, E.S.; Parker, D.A.; Brody, J.A.; and Schoenberg, R. Cognitive patterns resembling premature aging in male social drinkers. Alcoholism, 6(1):46-52, 1982.
- Parker, N. Psychotropic drug use in the elderly: Public ignorance or indifference? Comment 1. Medical Journal of Australia, 2(2):66, 1976.
- Parry, H.J.; Balter, M.B.; Mellinger, G.D.; Cisin, I.H.; and Manheimer, D.I. National patterns of psychotherapeutic drug use. Archives of General Psychiatry, 28:769-783, 1973.
- Pascarelli, E.F. An update on drug dependence in the elderly. Journal of Drug Issues, 9:47-54, 1979.
- Pascarelli, E.F. Drug dependence: An age-old problem compounded by old age. Geriatrics, 29:109-115, 1974.
- Pascarelli, E.F. Alcoholism and drug addiction in the elderly: Old drug addicts do not die, nor do they just fade away. Geriatric Focus, 11:1,4-5, 1972.
- *Pascarelli, E.F., and Fischer, W. Drug dependence in the elderly. International Journal of Aging and Human Development, 5(4):347-356, 1974.
- Pattee, J.J. Uncovering the elderly "hidden" alcoholic. Geriatrics, 37(2):145-146, 1982.
- Patterson, R.D.; Abrahams, R.; and Baker, F. Preventing self-destructive behavior. Geriatrics, 29:115-118, 1974.

- Pattison, J.H., and Aller, R.P. Comparison of the hypnotic effectiveness of secobarbital, pentobarbital, methyprylon and ethchlorvynol. Journal of the American Geriatrics Society, 20:398-402, 1972.
- Pavkov, J., and Stephens, B. The older adult and drug therapy: Part one. Special considerations for the community-based elderly. Geriatric Nursing, 422-428, 441, 1981.
- Payne, B.P. Community responsibility for drug use by the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 178-189.
- *Peck, D.G. Alcohol abuse and the elderly: Social control and conformity. Journal of Drug Issues, 9(1):63-71, 1979.
- Pelletier, J. /Problems related to the overindulgence in alcohol by elderly people./ (Fre) Toxicomanies, 9(2):121-143, 1976.
- *Peppers, L.G., and Stover, R.G. The elderly abuser: A challenge for the future. Journal of Drug Issues, 9(1):73-83, 1979.
- Pescor, M.J. Physician drug addicts. Diseases of the Nervous System, 3:173-174, 1942.
- Petersen, D.M., ed. Drug Use Among the Aged. Jamaica, N.Y.: SP Medical & Scientific Books, 1979.
- Petersen, D.M. Introduction: Drug use among the aged. Addictive Diseases: an International Journal, 3:305-309, 1978.
- *Petersen, D.M., and Thomas, C.W. Acute drug reactions among the elderly. Journal of Gerontology, 30(5):552-556, 1975.
- Petersen, D.M., and Whittington, F.J., eds. Drugs, alcohol, and aging. Special issue of Journal of Psychoactive Drugs, 13(2), 1981.
- Petersen, D.M., and Whittington, F.J. Drug use among the elderly: A review. Journal of Psychedelic Drugs, 5:25-37, 1977.
- *Petersen, D.M.; Whittington, F.J.; and Beer, E.T. Drug use and misuse among the elderly. Journal of Drug Issues, 9(1):5-26, 1979a.
- Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.; Thomas, 1979b.
- Petrie, W.M., and Ban, T.A. Drugs in geropsychiatry. Psychopharmacology Bulletin, 14:7-19, 1978.
- Petrilowitsch, N. /Problem areas in old people as reflected in suicidal patients./ (Ger) In: Probleme der Psychotherapie Alternder Menschen. 2d ed. New York: Karger, 1968.
- Petrin, A. Pharmacokinetics of drugs in the elderly. International Journal of Clinical Pharmacology, 9:157-159, 1974.
- Pfeiffer, E. Pharmacology of aging. In: Lesnoff-Caravaglia, G., ed. Health Care of the Elderly. New York: Human Sciences Press, 1980. Pp. 47-68.
- *Pfeiffer, E. Use of drugs which influence behavior in the elderly: Promises, pitfalls, and perspectives. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 44-66.
- Pfeiffer, E. A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. Journal of the American Geriatrics Society, 23:433-441, 1975.

- Pfeiffer, E. Use of drugs which influence behavior in the elderly: Promises, pitfalls, and perspectives. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 33-50.
- Piland, B. The aging process and psychoactive drug use in clinical treatment. In: The Aging Process and Psychoactive Drug Use, National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979. Pp. 1-16.
- Plant, J. Educating the elderly in safe medication use. Hospitals, 51:97-102, 1977.
- Plein, J.B.; Plein, E.M.; Kent, S.; and Wallace, D.L. Drug therapy-update for the long-term care nurse assessment of need and evaluation of method. American Journal of Hospital Pharmacy, 36:44-49, 1979.
- Plutchik, R.; McCarthy, M.; Hall, B.H.; and Silverberg, S. Evaluation of a comprehensive psychiatric and health care program for elderly welfare tenants in a single-room occupancy hotel. Journal of the American Geriatrics Society, 21:452-459, 1973.
- Poe, W.D., and Holloway, D.A. Drugs and the Aged. New York: McGraw-Hill, 1980.
- Porjesz, B., and Begleiter, H. Evoked brain potential deficits in alcoholism and aging. Alcoholism, 6(1):53-63, 1982.
- Portnoi, V. Portnoi criticizes the analysis of drug misuse in the elderly. The Gerontologist, 19(3):231-232, 1979.
- *Pottieger, A.E., and Inciardi, J.A. Aging on the street: Drug use and crime among older men. Journal of Psychoactive Drugs, 13(2):199-211, 1981.
- Powell, C. Methods in monitoring: A review of techniques of drug surveillance. Gerontologia clinica, 16:112-117, 1974.
- Pratt, R. Antibiotics in the elderly patient. Geriatrics, 12:341-349, 1957.
- *Prentice, R. Patterns of psychoactive drug use among the elderly. In: The Aging Process and Psychoactive Drug Use, National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1979. Pp. 17-41.
- Price, J.H., and Andrews, P. Alcohol abuse in the elderly. Journal of Gerontological Nursing, 8(1):16-19, 1982.
- Prien, R. Problems and practice in geriatric psychopharmacology. Psychosomatics, 21:221-223, 1980.
- Prien, R. Quoted in Drug Use and the Elderly: Perspectives and Issues, National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1975.
- Prien, R.F., and Cole, J.O. The use of psychopharmacological drugs in the aged. In: Clark, W. Principles of Psychopharmacology. 2d ed. New York: Academic Press, 1978. Pp. 592-605.
- Prien, R.F.; Haber, P.A.; and Caffey, E.M. The use of psychoactive drugs in elderly patients with psychiatric disorders: Survey conducted in twelve Veterans Administration hospitals. Journal of the American Geriatrics Society, 23(3):104-112, 1975.
- Primm, B.J. Poverty, folk remedies and drug misuse among the black elderly. In: Watson, W.H.; Skinner, J.H.; Lewis, I.; and Wesley, S.A.; eds. Health and the Black Aged. Washington, D.C.: The National Center on Black Aged, 1977. Pp. 63-70.
- Radke, F.W. Gerodontology and pharmacy. American Pharmaceutical Association Journal, 15:72-73, 1975.
- *Raffoul, P.R.; Cooper, J.K.; and Love, D.W. Drug misuse in older people. The Gerontologist, 21(2):146-151, 1981.

- Ragheb, M. Drug interactions in psychiatric practice. International Pharmacopsychiatry, 16:92, 1981.
- Raskind, M., and Eisdorfer, C. Psychopharmacology of the aged. In: Simpson, L.L., ed. Drug Treatment of Mental Disorders. New York: Raven Press, 1976. Pp. 237-266.
- Raskind, M.A. Helping the elderly psychiatric patient in a crisis. Geriatrics, 31:51-56, 1976.
- Rathbone-McCuan, E., and Bland, J. A treatment typology for the elderly alcohol abuser. Journal of the American Geriatrics Society, 23:553-557, 1975.
- *Rathbone-McCuan, E.; Lohn, H.; Levenson, J.; and Hsu, J. Community Survey of Aged Alcoholics and Problem Drinkers, National Institute on Alcohol Abuse and Alcoholism. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1976.
- Rathbone-McCuan, E., and Triegardt, J. "Older Alcoholic and the Family." Paper presented at the NCA meeting, St. Louis, Mo., 1978.
- Reed, M. Psychopharmacology in the geriatric patient. Rocky Mountain Medical Journal, 68:44-48, 1971.
- Reidenberg, M.M. Drugs and the elderly. Bulletin, New York Academy of Medicine, 56:703, 1980.
- Reidenberg, M.M.; Levy, M.; Warner, H.; Coutincho, C.B.; Schwartz, M.A.; Yu, G.; and Cheripko, J. Relationship between diazepam dose, plasma level, age and central nervous system depression. Clinical Pharmacology and Therapeutics, 23:371-374, 1978.
- Reimann, H., and Hafner, H. /Mental diseases of aged people in Mannheim: A study on the incidence of consultations./ (Ger) Social Psychiatry, 7(2):53-69, 1972.
- Relyea, K.D. Unit dose solves problems unique to nursing homes. Modern Nursing Homes, 26:12-16, 1971.
- Requarth, C.H. Medication usage and interaction in the long-term care elderly. Journal of Gerontological Nursing, 5:33-37, 1979.
- Resnik, H., and Cantor, J.M. Suicide and aging. Journal of the American Geriatrics Society, 18:152-158, 1970.
- Richey, D.P., and Bender, D.A. Pharmacokinetic consequences of aging. Annual Review of Pharmacology and Toxicology, 17:49-65, 1977.
- Rickels, K., and Briscoe, E. Assessment of dosage deviation in outpatient drug research. Journal of Clinical Pharmacology, 10:153-160, 1970.
- Ritschel, W.A. Pharmacokinetic approaches to drug dosing in the aged. Journal of the American Geriatrics Society, 24:344-354, 1976.
- Rix, K.J.; Hunter, D.; and Olley, P.C. Incidence of treated alcoholism in north-east Scotland, Orkney, and Shetland fishermen. British Journal of Industrial Medicine, 39(1):11-17, 1982.
- Robinson, D.B. Evaluation of certain drugs in geriatric patients: Effects of chlorpromazine, reserpine, pentylentetrazol U.S.P. and placebo on eighty-four female geriatric patients in a State hospital. Archives of General Psychiatry, 1:41-46, 1959.
- Rodstein, M., and Oei, L.S. Cardiovascular side effects of long-term therapy with tricyclic antidepressants in the aged. Journal of the American Geriatrics Society, 27:231-234, 1979.
- Roe, D.A. Nutrition and chronic drug administration--effects on the geriatric patient. American Pharmacy, 20(5):33-35, 1980.
- Rosen, H.J. Mental decline in the elderly: Pharmacotherapy (ergot alkaloids versus papaverine). Journal of the American Geriatrics Society, 23:169-174, 1975.

- *Rosenfelt, R.H.; Kastenbaum, R.; and Kempler, B. "The untestables": Methodological problems in drug research with the aged. The Gerontologist, 4:72-74, 1964.
- Rosenow, E.C., III. Drugs that may induce pulmonary disease. Geriatrics, 33:64-73, 1978.
- *Rosin, A.J., and Glatt, M.M. Alcohol excess in the elderly. Quarterly Journal of Studies on Alcohol, 32:53-59, 1971.
- Ross, B.; Greenwald, S.R.; and Linn, M.W. The elderly's perception of the drug scene. The Gerontologist, 13:368-371, 1973.
- Rudd, T.N. Use of drugs in the older age groups. Pharmaceutical Journal, 186:507-508, 1961.
- Ryan, C. Alcoholism and premature aging: A neuropsychological perspective. Alcoholism, 6(1): 22-30, 1982.
- Saario, I. Psychomotor skills during subacute treatment with thioridazine and bromazepam, and their combined effects with alcohol. American Clinical Research, 8:117, 1976.
- Sabyberger, G. Experiences, concepts, and some results with drugs in geriatric patients. Diseases of the Nervous System, 25:670-673, 1964.
- Sakalis, G.; Gershon, S.; and Shopsin, B. A trial of gerovital H-3 in depression during senility. Current Therapeutic Research--Clinical and Experimental, 16:59-63, 1974.
- Salem, S.A.M.; Rajjayabun, P.; Shepherd, A.M.M.; and Stevenson, I.H. Reduced induction of drug metabolism in the elderly. Age and Ageing, 7:68-73, 1972.
- Salter, W.T. Use of drugs for older people. Geriatrics, 7:317-323, 1952.
- Salzberger, G.J. Anxiety and disturbed behavior in the elderly. American Family Physician, 23(4):151-153, 1981.
- Salzman, C. A primer on geriatric psychopharmacology. The American Journal of Psychiatry, 139(1):67-74, 1982.
- Salzman, C.; Kochansky, G.E.; and Shader, R.I. Rating scales for geriatric psychopharmacology--a review. Psychopharmacological Bulletin, 8:3-50, 1972.
- *Salzman, C., and Shader, R.I. Depression in the elderly. II. Possible drug etiologies: Differential diagnostic criteria. Journal of the American Geriatrics Society, 26(7):303-308, 1978.
- Salzman, C., and Shader, R.I. Responses to psychotropic drugs in the normal elderly. In: Eisdorfer, C., and Fann, W.E., eds. Advances in Behavioral Biology. Vol. 6. Psychopharmacology and Aging. New York: Plenum Press, 1973.
- Salzman, C.; Shader, R.I.; Harmatz, J.; and Robertson, L. Psychopharmacologic investigations in elderly volunteers: Effects of diazepam in males. Journal of the American Geriatrics Society, 23:451-457, 1975.
- Salzman, C.; Shader, R.I.; Kochansky, G.; and Cronin, D.M. Rating scales for psychotropic drug research with geriatric patients: II. Mood ratings. Journal of the American Geriatrics Society, 20:215-221, 1972.
- Salzman, C.; Shader, R.I.; and Pearlman, M. Psychopharmacology and the elderly. In: Shader, R.I., and DiMascio, A., eds. Psychotropic Drug Side Effects. Baltimore: Williams & Wilkins, 1970. Pp. 261-279.
- *Salzman, C., and van der Kolk, B. Psychotropic drug prescriptions for elderly patients in a general hospital. Journal of the American Geriatrics Society, 28(1):18-22, 1980.
- Sarley, V.C., and Tyndall, F.W. Wine is beneficial to geriatric nonpatients, too. Nursing Homes, 20:27-30, 1971.

- Saunders, S.J. Second Annual Report Re Reducing Problem Drinking in a Home for the Aged: Castlevlew-Wychwood Towers. Toronto, Ontario: Addiction Research Foundation, 1976.
- Saunders, S.J. Search for a Means of Reducing Problem Drinking, and Aiding the Problem Drinkers, in a Senior Citizens Home. Toronto, Ontario: Addiction Research Foundation, 1974.
- Saxon, S.; Aldrich, S.Y.; and Kuncel, E.E. Suicide and drug use. In: Lettieri, D.J., ed. Drugs and Suicide. Beverly Hills, Calif.: Sage Publications, 1978.
- Schmidt, C.W. Psychiatric problems of the aged. Journal of the American Geriatrics Society, 22:355-359, 1974.
- Schneider, K.A. "Neglected Ministry: Alcohol, Pills, and Older Adults." Paper presented to the 29th Annual Meeting of the Alcohol and Drug Problem Association, Seattle, Washington, September 1978.
- Schuckit, M.A. Geriatric alcoholism and drug abuse. Gerontologist, 17(2):168-174, 1977.
- Schuckit, M.A.; Atkinson, J.H.; Miller, P.L.; and Berman, J. A three year follow-up of elderly alcoholics. Journal of Clinical Psychiatry, 41(12,pt.1):412-416, 1980.
- *Schuckit, M.A., and Miller, P.L. Alcoholism in elderly men: A survey of a general medical ward. Annals of the New York Academy of Sciences, 273:558-571, 1976.
- Schuckit, M.A.; Miller, P.L.; and Hahlbohm, D. Unrecognized psychiatric illness in elderly medical-surgical patients. Journal of Gerontology, 30(6):655-660, 1975.
- *Schuckit, M.A.; Morrissey, E.R.; and O'Leary, M.R. Alcohol problems in elderly men and women. Addictive Diseases: an International Journal, 3(3):405-416, 1978. Also published separately by the University of Washington, Seattle, 1977.
- Schuckit, M.A., and Pastor, P.A. Alcohol-Related Psychopathology in the Aged. Seattle, Wash.: University of Washington, 1978a.
- Schuckit, M.A., and Pastor, P.A., Jr. The elderly as a unique population: Alcoholism. Alcoholism: Clinical and Experimental Research, 2(1):31-38, 1978b.
- Schuster, C.R., and Thompson, T. Self-administration of and behavioral dependence on drugs. Annual Review of Pharmacology, 9:483-502, 1969.
- Schwartz, D. Safe self-medication for elderly outpatients. American Journal of Nursing, 75(10):1808-1810, 1975.
- Schwartz, D. The elderly patient and his medications. Geriatrics, 20:517-520, 1965.
- *Schwartz, D.; Wang, M.; Zeitz, L.; and Goss, M.E.W. Medication errors made by elderly, chronically ill patients. American Journal of Public Health, 52(12):2018-2029, 1962.
- Schwid, S.A., and Gifford, R.W. The use and abuse of antihypertensive drugs in the aged. Geriatrics, 22(6):172-182, 1967.
- Seager, C.P. Chlorpromazine in treatment of elderly psychotic women. British Medical Journal, 1:882-885, 1955.
- *Seixas, F.A. Drug/alcohol interactions: Avert potential dangers. Geriatrics, 34(10):89-102, 1979.
- Seixas, F.A. Alcohol and its drug interactions. Annals of Internal Medicine, 83:86, 1978.
- Seliger, R.V. Alcoholism in the older age groups. Geriatrics, 3:166-170, 1948.
- Seligman, M.E.P. Helplessness: On Depression, Development and Death. San Francisco: W.H. Freeman, 1975.

- Selzer, M.L., and Holloway, W.H. A follow-up of alcoholics committed to a State hospital. Quarterly Journal of Studies on Alcohol, 18:98-120, 1957.
- Seneca, H. Management of infections and infestations in the elderly. Journal of the American Geriatrics Society, 18:798-815, 1970.
- Senior Citizen's Pharmacy Education Program. For Seniors Only: A Guide to Using Drugs in the Later Years. San Francisco: the Program, 1979.
- Shader, R.I.; Greenblatt, D.J.; Harmatz, J.S.; Franke, K.; and Koch-Weser, J. Absorption and disposition of chlordiazepoxide in young and elderly male volunteers. Journal of Clinical Pharmacology, 17:709-718, 1977.
- Shanahan, P.M. The elderly alcoholic. Issues in Mental Health Nursing, 1:12-24, 1978.
- Shaw, S.M., and Opit, L.J. Need for supervision in the elderly receiving long-term prescribed medication. British Medical Journal, 1:505-507, 1975.
- *Shichor, D., and Kobrin, S. Note: Criminal behavior among the elderly. The Gerontologist, 18(2):213-218, 1978.
- Shneidman, E.S. Orientations toward death: A vital aspect of the study of lives. In: Resnick, H.L.P., ed. Suicidal Behaviors. Boston: Little, Brown, 1968.
- Shomaker, D.M. Use and abuse of OTC medications by the elderly. Journal of Gerontological Nursing, 6(1):21-24, 1980.
- Shropshire, R.W. The hidden faces of alcoholism. Geriatrics, 30(3):99-102, 1975.
- Siassi, I.; Crocetti, G.; and Spiro, H.R. Drinking patterns in a blue collar population. Quarterly Journal of Studies on Alcohol, 34:917-926, 1973.
- Simon, A. The neuroses, personality disorders, alcoholism, drug use and misuse, and crime in the aged. In: Birren, J., and Sloan, R., eds. Handbook of Mental Health and Aging. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Simon, A.; Epstein, L.J.; and Reynolds, L. Alcoholism in the geriatric mentally ill. Geriatrics, 23:125-131, 1968.
- Simonson, W. Medication of the elderly: Effect on response to physical therapy. Physical Therapy, 58:178-179, 1978.
- Simonson, W. Drug problems of the elderly. In: Rifai, M.A.Y., ed. Justice and Older Americans. Lexington, Mass.: Lexington Books, 1977.
- Singh, B.K., and Knezek, L.D. "Characteristics and Treatment Outcomes of Older Patients in Drug Treatment Programs." Presented at the Gerontological Society meeting, Dallas, Texas, 1978.
- Slater, P.E., and Kastenbaum, R. Paradoxical reactions to drugs: Some personality and ethnic correlates. Journal of the American Geriatrics Society, 14:1016-1034, 1966.
- *Smart, R.G., and Liban, C.B. Predictors of problem drinking among elderly, middle-aged and youthful drinkers. Journal of Psychoactive Drugs, 13(2):153-163, 1981.
- Smith, J.W.; Seidl, L.G.; and Cluff, L.E. Studies on the epidemiology of adverse drug reactions. Annals of Internal Medicine, 65:629-640, 1966.
- Smith, M.C. Portrayal of the elderly in prescription drug advertising: A pilot study. The Gerontologist, 16:329-334, 1976.
- Snow, M. Maturing out of narcotic addiction in New York City. The International Journal of the Addictions, 8:921-938, 1973.

- Snyder, P.K., and Way, A. Alcoholism and the elderly. Aging, 291:8-11, 1979.
- Snyder, V. Aging, alcoholism, and reactions to loss. Social Work, 22:232-233, 1977.
- Solomon, D.K.; Baumgartner, R.P.; Glascock, L.M.; Glascock, S.A.; Briscoe, M.E.; and Billups, N.F. Use of medication profiles to detect potential therapeutic problems in ambulatory patients. American Journal of Hospital Pharmacy, 31:348-354, 1974.
- Solomon, D.K.; Baumgartner, R.P., Jr.; Weissman, A.M.; et al. Pharmaceutical services to improve drug therapy for home health care patients. American Journal of Hospital Pharmacy, 35:553-557, 1978.
- Solomon, J.R. The chemical time bomb: Drug misuse by the elderly. Contemporary Drug Problems, 6:231-243, 1977.
- Stannard, C. Old folks and dirty work: The social conditions for patient abuse in a nursing home. Social Problems, 20:329-342, 1973.
- Staples, B.; Mandel, J.; and Davis, K. Elder-Ed: A Model Education Program: Prevention of Medication Misuse for the Elderly, National Institute on Drug Abuse. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1978.
- *Stephens, R.C.; Haney, C.A.; and Underwood, S. Psychoactive drug use and potential misuse among persons aged 55 years and older. Journal of Psychoactive Drugs, 13(2):185-193, 1981.
- Stern, F.H. Sleep-inducing properties of a non-barbiturate analgesic/sedative preparation in elderly patients. Clinical Medicine, 79:31-33, 1972.
- Sternlicht, D. The elderly, drugs, and the future. The Street Pharmacologist, 3(1):4,10-13, 1980.
- Stevenson, I.H. Drug metabolism in the elderly. Age and Ageing, 7(Sup.):131, 1978.
- Stewart, R.B., and Cluff, L.E. A review of medication errors and compliance in ambulant patients. Clinical Pharmacology and Therapeutics, 13:463-468, 1972.
- Stimmel, G.L. Issues in psychotropic drug misuse. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 67-74.
- Stone, G.C. Patient compliance and the role of the expert. Journal of Social Issues, 35(1):34-59, 1979.
- Stotsky, B. Use of psychopharmacologic agents for geriatric patients. In: DiMascio, A., and Shader, R.I., eds. Clinical Handbook of Psychopharmacology. New York: Jason Aronson, 1970. Pp. 265-278.
- Strategy Council on Drug Abuse. Federal Strategy for Drug Abuse and Drug Traffic Prevention. Washington, D.C.: the Council, 1979.
- Sun, A., and Samorajski, T. The effects of age and alcohol on $(Na^{+}+K^{+})$ --ATPase activity of whole homogenate and synaptosomes prepared from mouse and human brain. Journal of Neurochemistry, 24:161-164, 1975.
- Sutcliffe, R.L.G. The treatment of parkinsonism with levodopa. Gerontologia clinica, 16:151-156, 1974.
- Swisher, J., and Hoffman, A. Information: The irrelevant variable in drug education. In: Corder, B.; Smith, R.; and Swisher, J.; eds. Drug Abuse Prevention: Perspectives and Approaches for Educators. Dubuque, Iowa: William C. Brown Co., 1975.
- Szydlowski, M.A. A study of the use of hypnotics and tranquilizers. Nursing Homes, 24:12, 1975.

Task Force on Prescription Drugs, U.S. Dept. of Health, Education, and Welfare. The Drug Users and the Drug Prescribers. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1971.

Task Force on Prescription Drugs, U.S. Dept. of Health, Education, and Welfare. The Drug Users. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1968.

Tewfik, G.I.; Jain, V.K.; Harcup, M.; and Magowan, S. Effectiveness of various tranquilizers in the management of senile restlessness. Gerontologia clinica, 12:351-359, 1970.

Thomas, D.L. Clinical and administrative aspects of drug misuse in nursing homes. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979.

Thompson, J. Alcohol and Drug Research in Saskatchewan 1970-1978. Canada: Saskatchewan Alcoholism Commission, Research Division, 1978.

Thompson, J.F., and Floyd, R.A. Effect of aging on pharmacokinetics. In: Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 143-156.

*Thorson, J.A., and Thorson, J.R. Patient education and the older drug taker. Journal of Drug Issues, 9(1):85-89, 1979a.

Thorson, J.A., and Thorson, J.R.J. Nursing responsibilities in the administration of drugs to older patients. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979b. Pp. 151-162.

Thumin, F., and Wims, E. The perception of the common cold, and other ailments and discomforts, as related to age. International Journal of Aging and Human Development, 6:43-50, 1975.

Townsend, C. Old Age: The Last Segregation. New York: Grossman, 1971.

Triggs, E.J., and Nation, R.L. Pharmacokinetics in the aged: A review. Journal of Pharmacokinetics and Biopharmaceutics, 3:387-418, 1975.

Triggs, E.J.; Nation, R.L.; Long, A.; and Ashley, J.J. Pharmacokinetics in the elderly. European Journal of Clinical Pharmacology, 8:55-62, 1975.

Trounce, J.R. Drugs in the elderly. British Journal of Clinical Pharmacology, 2:23-26, 1975.

Tsuang, M.M.; Lu, L.M.; Stotsky, B.A.; and Cole, J.O. Haloperidol versus thioridazine for hospitalized psychogeriatric patients: Double blind study. Journal of the American Geriatrics Society, 19:593-600, 1971.

Tucker, L. Psychotherapeutic drugs and the elderly. American Pharmacy, NS19(9):22-24, 1979.

*Turakka, H., and Enlund, H. Drug use and prescription compliance by elderly patients. Journal of Clinical Pharmacy, 3:103-112, 1978.

Turner, T.B. Beer and wine for geriatric patients. Journal of the American Medical Association, 226:779-780, 1973.

Twigg, W.C. Alcoholism in a home for the aged. Geriatrics, 14:391-395, 1959.

U.S. Department of Health, Education, and Welfare, Public Health Service, Office of Long Term Care. Physicians' Drug Prescribing Patterns in Skilled Nursing Facilities. Monograph No. 2. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1976.

U.S. Department of Health, Education, and Welfare; Alcohol, Drug Abuse, and Mental Health Administration. "Report Required by Public Law 95-210 on the Advantages and Disadvantages of Extending Medicare Coverage to Mental Health, Alcohol, and Drug Abuse Centers." September 1978.

- U.S. General Accounting Office. "Drugs Provided to Elderly Persons in Nursing Homes Under the Medicaid Program." Report to the U.S. Senate Subcommittee on Long-Term Care of the Special Committee on Aging, January 5, 1972.
- U.S. Public Health Service. Working With Older People: A Guide to Practice. Vol. II. Biological, Psychological, and Sociological Aspects of Aging. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1970.
- U.S. Senate Subcommittee on Long-Term Care of the Special Committee on Aging. Nursing Homes Care in the United States: Failure in Public Policy. Supporting Paper No. 2. Drugs in Nursing Homes: Misuse, High Costs, and Kickbacks. Washington, D.C.: Supt. of Docs., U.S. Govt. Print. Off., 1975.
- Van De Vyvere, B.; Hughes, M.; Fish, D.G. Elderly chronic alcoholic: A practical approach. Canadian Welfare, 52(4):9-13, 1976.
- van der Kolk, B.A. Organic problems in the aged: Brain syndromes and alcoholism. Discussion. Journal of Geriatric Psychiatry, 11(2):167-170, 1978.
- van der Kolk, B.A. Organic problems in the aged: Brain syndromes and alcoholism. Introduction. Journal of Geriatric Psychiatry, 11(2):131-134, 1978.
- van der Kolk, B.A. Organic problems in the aged: Brain syndromes and alcoholism. Introductory remarks on alcoholism. Journal of Geriatric Psychiatry, 11(2):171-173, 1978.
- van Pragg, H.M. Psychotropic drugs in the aged. Comprehensive Psychiatry, 18:429-442, 1977.
- Vener, A.; Krupka, L.; and Climo, J. Drug usage and health characteristics in non-institutionalized Mexican-American elderly. Journal of Drug Education, 10(4):343-354, 1980.
- *Vener, A.M.; Krupka, L.R.; and Climo, J.J. Drug usage and health characteristics in non-institutional retired persons. Journal of the American Geriatrics Society, 27(2):83-90, 1979.
- Vestal, R.E. Pharmacology and aging. Journal of the American Geriatrics Society, 30:191, 1982.
- Vestal, R.E. Methodological problems associated with studies of drug metabolism in the elderly. In: London, T.P., ed. Clinical Pharmacology and Therapeutics: Proceedings of the First World Conference. New York: MacMillan, 1980. Pp. 108-116.
- Vestal, R.E. Aging and pharmacokinetics: Impact of altered physiology in the elderly. In: Cherkin, A.; Finch, C.E.; Kharasch, N.; Makinodan, T.; Scott, F.L.; and Strehler, B.; eds. Physiology and Cell Biology of Aging. New York: Raven Press, 1979. Pp. 185-201.
- Vestal, R.E. Drug use in the elderly: A review of problems and special considerations. Drugs, 16:358-382, 1978.
- Vestal, R.E.; McGuire, E.A.; Tobin, J.D.; Andres, R.; Norris, A.H.; and Mezey, E. Aging and ethanol metabolism. Clinical Pharmacology and Therapeutics, 21:343-354, 1977.
- Vestal, R.E.; Norris, A.H.; Tobin, J.D.; Cohen, B.H.; Shock, N.W.; and Andres, R. Antipyrine metabolism in man: Influence of age, alcohol, caffeine and smoking. Clinical Pharmacology and Therapeutics, 18:425-432, 1975.
- Villaverde, M.M., and MacMillan, C.W. Ailments of Aging: From Symptom to Treatment. New York: Van Nostrand Reinhold, 1980.
- Viukari, M.; Linnoila, M.; and Aalto, J. Efficacy and side effects of flurazepam, fosazepam and nitrazepam as sleeping aids in psychogeriatric patients. Acta Psychiatrica Scandinavica, 57:27-35, 1978.
- Volpe, A., and Kastenbaum, R. Beer and TLC. American Journal of Nursing, 67:100-103, 1967.
- Voorhees, L.; Stern, B.; and Hilferty, J. "Intervention Techniques for the Aging Alcoholic." Paper presented at the San Francisco Conference on Aging and Alcoholism, San Francisco, Calif., Aug. 1981.

- Nader, O.L. Drug therapy in the elderly. Age and Ageing, 1:65-73, 1972.
- Waller, J.A. Falls among the elderly--human and environmental factors. Accident Analysis and Prevention, 10(1):21-33, 1978.
- Wandless, I., and Davie, J.W. Can drug compliance in the elderly be improved? British Medical Journal, 1:355-361, 1977.
- Ward, C.O., and Hanan, Z.I. These nine drugs can pose special problems for elderly. Modern Nursing Homes, 28:10-14, 1972.
- Warder, J., and Ross, C.J. Age and alcoholism. The British Journal of Addiction, 66:45-51, 1971.
- *Warheit, G.J.; Arey, S.A.; and Swanson, E. Patterns of drug use: An epidemiologic overview. Journal of Drug Issues, 6(3):223-237, 1976.
- *Warren, F. Self-medication problems among the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 105-125.
- Waters, E.; Reiter, S.; White, B.; and Dates, B. The role of paraprofessional peer counselors in working with older people. In: Ganikos, M., ed. Counseling the Aged. Washington, D.C.: American Personnel and Guidance Association, 1979.
- Wax, T. "Alcohol Abuse Among the Elderly." Presented at the annual scientific meeting of the Gerontological Society, Louisville, Ky., 1975.
- Webb, W.L., Jr. The use of psychopharmacological drugs in the aged. Geriatrics, 26:94-103, 1971.
- *Weg, R.B. Drug interaction with the changing physiology of the aged: Practice and potential. In: Davis, R.H., and Smith, W.K., eds. Drugs and the Elderly. Los Angeles: Ethel Percy Andrus Gerontology Center, University of Southern California, 1973. Pp. 71-91. Also in Kayne, R.C., ed. Drugs and the Elderly. 2d ed. Los Angeles: University of Southern California Press, 1978. Pp. 103-142.
- Wells, C. Chronic brain disease: An update on alcoholism, Parkinson's disease, and dementia. Hospital and Community Psychiatry, 33(2):111-126, 1982.
- Welsh, R.P. "Investigation of the Alcohol-Related Problems of the Elderly in Ottawa." Paper presented at the Futuraction '77 Conference, Winnipeg, Manitoba, Canada, July 1977.
- Whanger, A.D. Drug management of the elderly in State hospitals. In: Fann, W.E., and Mad-dox, G.L., eds. Drug Issues in Geropsychiatry. Baltimore: Williams & Wilkins, 1974. Pp. 103-109.
- Whanger, A.D. Vitamins and vigor at 65 plus. Postgraduate Medicine, 53:167-172, 1973.
- Whitehead, P.C. Notes on the association between alcoholism and suicide. The International Journal of the Addictions, 7:525-532, 1972.
- Whitlock, F.A. Psychotropic drug use in the elderly. Medical Journal of Australia, 2:320, 1976.
- Whittier, J.R., and Korenyi, C. Selected characteristics of aged patients: A study of mental hospital admissions. Comprehensive Psychiatry, 2:113-120, 1961.
- *Whittington, F.J. Drugs, aging and social policy. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 190-220.
- Whittington, F.J., and Petersen, D.M. Drugs and the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 14-27.

- Whittington, F.J.; Petersen, D.M.; Dale, B.; and Dressel, P.L. Sex differences in prescription drug use of older adults. Journal of Psychoactive Drugs, 13:175-184, 1981.
- Wieland, W.F. The physician's role in the administration of psychotropic drugs to the elderly patient. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 141-150.
- Wilkinson, G.R. The effects of aging on the disposition of benzodiazepines in man. In: Crooks, J., and Stevenson, I.H., eds. Drugs and the Elderly. Baltimore: University Park Press, 1979. P. 103.
- Wilkinson, P. Alcoholism in the aged. The Journal of Geriatrics, Nov. 1971. Pp. 59-64.
- Williams, E.P., and Mysak, P. Alcoholism and problem drinking among older persons. In: Williams, E.P., et al., eds. Alcoholism and Problem Drinking Among Older Persons. Springfield, Va.: National Technical Information Service, 1973.
- Williamson, J. Prescribing problems in the elderly. Practitioner, 220:749-755, 1978.
- *Williamson, J., and Chopin, J.M. Adverse reactions to prescribed drugs in the elderly: A multicentre investigation. Age and Ageing, 9(2):73-80, 1980.
- Wilson, J. The plight of the elderly alcoholic. Geriatric Nursing, 2(2):114-118, 1981.
- Wine Advisory Board. Wine in geriatrics and convalescence. In: Uses of Wine in Medical Practices: A Summary. San Francisco: the Board, 1975. Pp. 38-43.
- Winick, C. The life cycle of the narcotic addict and of addiction. Bulletin on Narcotics, 16:1-11, 1964.
- *Winick, C. Maturing out of narcotic addiction. Bulletin on Narcotics, 14(1):1-7, 1962.
- Winick, C. Physician narcotic addicts. Social Problems, 9:174-186, 1961.
- Witton, K., and Hermann, H.T. Clinical experiences with acetophenazine in the elderly psychotic. Diseases of the Nervous System, 24:314-318, 1963.
- Wolff, S., and Holland, L. A questionnaire follow-up of alcoholic patients. Quarterly Journal of Studies on Alcohol, 25:108-118, 1964.
- *Wood, W.G. The elderly alcoholic: Some diagnostic problems and considerations. In: Storandt, M.; Siegler, I.C.; and Elias, M.F.; eds. The Clinical Psychology of Aging. New York: Plenum Press, 1978. Pp. 97-113.
- World Health Organization. Health care in the elderly: Report of the Technical Group on Use of Medicaments by the Elderly. Drugs, 22(4):279-294, 1981.
- Wynne, R., and Heller, F. Drug overuse among the elderly: A growing problem. Perspective on Aging, 2:15-18, 1973.
- Yaksich, S. AAA launches alcohol-traffic programs for senior citizens. Traffic Safety, 78(8):21, 1978.
- Yanchick, V. Foods vs. drugs: A new concern. Aging Research Utilization Report, 3:4-6, 1976.
- Zander, T.K. Medication and the right to refuse--Prolixin Decanoate: A review of the research. Mental Disability Law, 2:37-42, 1977.
- *Zawadski, R.T.; Glazer, G.B.; and Lurie, E. Psychotropic drug use among institutionalized and noninstitutionalized Medicaid aged in California. Journal of Gerontology, 33(6):825-834, 1978.
- Zax, M.; Gardner, E.A.; and Hart, W.T. Public intoxication in Rochester: A survey of individuals charged during 1961. Quarterly Journal of Studies on Alcohol, 25:669-678, 1964.

- Zeman, F.D. The functional capacity of the aged, its estimation and practical importance. Journal of Mt. Sinai Hospital, 14:721-728, 1947.
- *Ziance, R.J. Side effects of drugs in the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 53-79.
- Zimberg, S. Alcohol and the elderly. In: Petersen, D.M.; Whittington, F.J.; and Payne, B.P.; eds. Drugs and the Elderly: Social and Pharmacological Issues. Springfield, Ill.: Thomas, 1979. Pp. 28-40.
- Zimberg, S. Diagnosis and treatment of the elderly alcoholic. Alcoholism: Clinical and Experimental Research, 2(1):27-29, 1978a.
- Zimberg, S. Treatment of the elderly alcoholic in the community and in an institutional setting. Addictive Diseases: an International Journal, 3:417-427, 1978b.
- *Zimberg, S. The elderly alcoholic. The Gerontologist, 14(3):221-224, 1974a.
- Zimberg, S. Evaluation of alcoholism treatment at home. Quarterly Journal of Studies on Alcohol, 35:550-557, 1974b.
- Zimberg, S. Two types of problem drinkers: Both can be managed. Geriatrics, 29:135-136, 1974c.
- Zimberg, S. The geriatric alcoholic on a psychiatric couch. Geriatric Focus, 11:1,6-7, 1972.
- *Zimberg, S. The psychiatrist and medical home care: Geriatric psychiatry in the Harlem community. American Journal of Psychiatry, 127(8):1062-1066, 1971.
- Zimberg, S. Outpatient geriatric psychiatry in the urban ghetto with nonprofessional workers. American Journal of Psychiatry, 125:1697-1702, 1969.
- Zimberg, S.; Wallace, J.; and Blume, S.; eds. Practical Approaches to Alcoholism Psychotherapy. New York: Plenum Press, 1978.
- Zimring, S., and Domeischel, J.R. Is alcoholism a problem of the elderly? Journal of Drug Education, 12(2):103-112, 1982.
- Zung, W.W.K.; Gianturco, D.; Pfeffer, E.; Wang, H.S.; Whanger, A.; Bridge, T.P.; and Potkin, S.G. Pharmacology of depression in the aged: Evaluation of gerovital-H3 as an anti-depressant drug. Psychosomatics, 15:127-131, 1974.
- Zwerling, I.; Plutchik, R.; Hotz, M.; Kling, R.; Rubin, L.; Grossman, J.; and Siegel, B. Effects of a procaine preparation (gerovital H3) in hospitalized geriatric patients: A double-blind study. Journal of the American Geriatrics Society, 23:355-359, 1975.

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DATA COLLECTION INSTRUMENT

The specific instrument or scale used in the research reported by the study.

DRUG

The general and specific names of all drugs mentioned in the abstracts and introductions to the abstracts, as used by the author of the document.

GEOGRAPHICAL AREA

Organized by State; includes the cities, counties, or regions where the study was carried out.

INVESTIGATOR

All authors named in the citation to each abstract are listed.

SAMPLE TYPE

Terms that describe as specifically as possible the sample population studied.

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Terms that describe the subjects or concepts of the studies.

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